Towards a psychological understanding of the yips across and within sport.

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REFERENCE

TOWARDS A PSYCHOLOGICAL UNDERSTANDING OF THE YIPS ACROSS AND WITHIN SPORT

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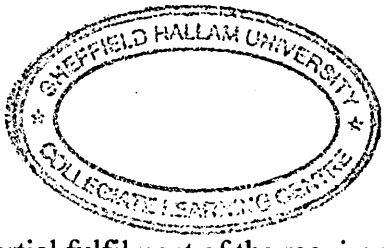

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ABSTRACT

Recent research examining the 'yips' has focused a great deal on the mechanisms underpinning the experience in golf (McDaniel, Shain & Cummings, 1989). The research has generally shown that the 'yips' are a performance problem which lie on a continuum where choking (anxiety related) and dystonia symptoms anchor the extremes. The primary aim of this thesis was to examine the 'yips' problem across a range of sports skills, assessing the physical and psychological symptoms experienced, and the potential underlying mechanisms. A further aim, was to assess whether the 'yips' were the same problem independent of sport-type, or something entirely different. Study 1 examined the 'yips' from a broad perspective, using a mixed methods survey approach (Teddlie & Tashakorri, 2003). The study illustrated that the predominant sport skills affected by the 'yips' are golf putting, the darts throw and the cricket bowling action. The findings suggested that the 'yips' result in physical disruptions which occur during skill execution. Furthermore, the study indicated that, across sports, similar psychological symptoms emerged. Study 2 used a Grounded Theory (Strauss & Corbin, 1990) based approach to guide sampling, data collection and analysis. Individuals, independent of their sport, displayed perfectionist, obsessional and self conscious characteristics. In addition, all of the participants had experienced a significant life event at or around the time the 'yips' started. Recent movement disorder research had reported similar findings which may suggest that similar causal factors operate for focal dystonia and the 'yips' (Schweinfurth et al., 2002). Once individuals had experienced the initial 'yip', it appeared that participants would try and 'reinvest' in the knowledge base, and that they would obsessionally think about what had happened. It was suggested that individuals may convert the psychological pain experienced during that event into physical symptoms through a process of conversion (Baker & Humblestone, 2005), thus resulting in the 'yip'. Research has illustrated that damage to the basal ganglia has resulted in a wide range of dysfunctions in both emotions and motor behaviour (Lim et al., 2001). Future research should look to examine the impact of the significant life event has on the function of the basal ganglia. Study 3 used a quantitative approach, to assess whether individuals with the 'yips' displayed higher levels of perfectionism, obsessional thinking and reinvestment, than a matched control. The research suggests that those who experience the 'yips' have elevated levels of maladaptive perfectionism, obsessional thinking and self-consciousness compared with controls. These findings support research examining focal dystonia (Jabusch & Altenumuller, 2004) and the 'yips' (McDaniel et al., 1989). The final aim of the thesis attempted to establish a psychological intervention strategy that could aid performers who experience the 'yips'. The research used a novel form of intervention in the form of the Emotional Freedom Technique (Craig, 1995). The aim was to test whether the intervention was successful rather than the underpinning mechanisms of the process. The intervention was aimed at the events which occurred prior to the 'yips' to assess whether physical symptoms subsided, and performance returned to normality. In the two case studies illustrated, the intervention appeared to have success at 4 weeks and 6 months post-intervention, therefore adding tentative support that the 'yips' may be caused by psychologically significant life events. It would appear that the 'yips' are a psychogenic movement disorder. Future research should look to understand the relationship between perfectionism, obsessional thinking, self-consciousness, life events and the development of the 'yips'. Furthermore, research should combine multi-disciplinary knowledge to explore the 'yips' to gain a more holistic understanding of the problem from a psychological and neurological perspective.

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CONTENTS

ABSTRACT ii

CHAPTER 1 1

1.0 INTRODUCTION 2

CHAPTER 2 9

2.0 REVIEW OF LITERATURE 10

2.1 PERFORMANCE PROBLEMS 11

2.1.1 Performance Problems: The 'Yips' 12

2.1.2 Performance Problems: LMS 22

2.1.3 Performance Problems: Sport Performance Phobias 27

2.1.4 Performance Problems: Section Summary 32

2.2 FOCAL DYSTONIA 32

2.2.1 Focal Dystonia: Personality Factors 35

2.2.2 Focal Dystonia: Aetiology Of The Problem 39

2.2.3 Focal Dystonia: Section Summary 43

2.3 SUMMARY AND AIMS OF RESEARCH 44

CHAPTER 3 **46**

3.0 STUDY 1. AN EXPLORATORY INVESTIGATION OF THE 'YIPS' ACROSS AND WITHIN SPORT 47

3.1. Introduction 47

3.2. Methods 48

3.3. Results 51

3.4. Discussion 63

CHAPTER 4 **68**

4.0 UNDERSTANDING THE 'YIPS' IN SPORT: A GROUNDED THEORY INTERVIEW STUDY 69

4.1 Introduction 69

4.2 Method 74

4.3 Results 84

4.4 General Discussion 117

CHAPTER 5 **126**

5.0 DO 'YIPS' AFFECTED INDIVIDUALS DISPLAY ELEVATED LEVELS OF PERFECTIONISM, OBSESSIONAL THINKING AND SELF CONCIOUSNESS? 127

5.1 Introduction 127

5.2 Methods 142

5.3 Results 145

5.4 Discussion 146

CHAPTER 6 **154**

6.0 BACKGROUND TO CHAPTER 155

6.01 USING A MERIDIAN BASED INTERVENTION AS A CASE STUDY FOR TREATING THE 'YIPS' 157

6.1 Introduction 157

6.2 Method 167

6.3 Results 176

6.4 Discussion 189

CHAPTER 7 **198**

7.0 Discussion And Conclusions 199

7.1 Summary Of Findings 199

7.1.1. Physical And Psychological Mechanisms Involved In The 'Yips' Experience Across Sport 199

7.1.2. Mechanisms Underpinning The 'Yips' Experience 202

7.1.3. Are Certain Types Of Individual More Prone To The 'Yips' Experience? 205

7.1.4. Why Do The 'Yips' Develop Into A Long-Term Problem? 208

7.1.5. The Development Of A Psychological Intervention Strategy Used To Combat The 'Yips' 209

7.1.6. A Summary Of The Processes Involved In The 'Yips' Experience Highlighted By This Thesis 212

7.2 CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH 213

7.3 THESIS LIMITATIONS AND DELIMITATIONS 218

REFERENCES **219**

LIST OF FIGURES

Figure	Title	Page No.
3.1	Golf open-ended responses	52
3.2	Darts open-ended responses	55
3.3	Cricket open-ended responses	58
4.1	Research journal created 28th Nov 2005	78
4.2	Example of self reflective memo immediately after cricket interview	80
4.3	Example of analytical memo for the concept 'first occurrence'	81
4.4	Example of model building	83
4.5	Characteristics of those with the 'yips'	85
4.6	Significant life events pre 'yips' (cricket)	89
4.7	Significant life events pre 'yips' (darts)	92
4.8	Significant life events pre 'yips' (golf)	93
4.9	First occurrence of the 'yips' (cricket)	96
4.10	First occurrence of the 'yips' (darts)	98
4.11	First occurrence of the 'yips' (golf)	99
4.12	Subsequent experiences of the 'yips' (cricket)	106
4.13	Subsequent experiences of the 'yips' (darts)	108
4.14	Subsequent experiences of the 'yips' (golf)	110
4.15	Summary of the 'yips' experience	118
6.1	The EFT acu-points	169
6.2	Summary of phase 2	172
6.3	Experimental set-up for phase 2	173
6.4	Frequency and severity of the 'yips' symptoms playing cricket	178
6.5	Visual indicator of the 'yips' in relation to treatment as reported by the experimenter	181
6.6	Putting success rate in relation to treatments	182
6.7	Rotation and velocity data for 2 foot putts	184
6.8	Rotation and velocity data for 4 foot putts	185
6.9	Rotation and velocity data for 6 foot putts	186

6.10 Frequency and severity of the 'yips' symptoms on the golf course 188

LIST OF TABLES

Table	Title	Page No.
5.1	Means, standard deviations and effect sizes for the 'yips' and non 'yips' groups	146

LIST OF APPENDICES

Appendix	Title
1	Timeline of the thesis
2	Sample questionnaire completed by BASES Accredited sport psychologist
3	Copy of the internet survey
4	Sample data from Survey
5	Informed consent form for study 2
6	NVIVO 'print screen' examples
7	Interview transcript from study 2
8	Reinvestment Scale
9	Frost Multidimensional Perfectionism Scale
10	SPSS Outputs for study 3
11	Ethics approval study 4
12	Social validation questionnaire study 4
13	SAM pre and post data examples
14	Yips interview pre-intervention study 4
15	Yips interview post-intervention study 4

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GLOSSARY

Conversion	The process of converting psychological trauma into physical symptoms as a defence mechanism
Choking	The occurrence of inferior performance despite an individual striving for superior performance
Dystonia	A neurological movement disorder characterised by involuntary muscle contractions which force certain body parts into abnormal movements
Lost Move Syndrome	A term used to describe an athlete's situation where they suddenly find they can no longer perform a skill when previously they could
Obsessional thinking	A dispositional compulsive preoccupation with an unwanted feeling or emotion, often with symptoms of anxiety
Perfectionism	A dispositional propensity for setting extremely high standards and being displeased with anything else
Psychogenic Movement Disorder	A term used to describe movement disorders which are psychologically based
Reinvestment	A personality trait associated with conscious processing under stress
Self consciousness	A dispositional tendency to experience self-awareness in social situations
Sport Performance Phobia	An irrational fear relating to a specific performance parameter which the performer was fully capable of executing prior to the phobic response
'Yips'	A motor phenomenon that consists of involuntary movements occurring in the course of finely controlled, skilled motor behaviour

CHAPTER 1

1.0 INTRODUCTION

There is a substantial amount of research in the field of sport psychology, which has examined the negative effects of stress on performance (see Jones & Hardy, 1990). For instance, researchers have developed unidimensional models of anxiety (Hull, 1943; Yerkes & Dodson, 1908), multidimensional models of anxiety (Fazey & Hardy, 1988) and personality models of anxiety (Kerr, 1985). Despite this, there has been limited focus on the more severe performance problems experienced by individuals (Silva, 1994). Such severe performance problems can result in the long-term loss of skills that were previously carried out automatically (McDaniel, Cummings & Shain, 1989). An example of this is the phenomenon that has been colloquially labelled as the 'yips' amongst professional and amateur sports people (Bawden & Maynard, 2001).

The 'yips' are a performance problem, which tends to affect simple tasks that, up to the onset of the response, the individual demonstrated no concern about performing (Smith, Malo, Laskowski, Sabick, Cooney & Finnie, 2000). Furthermore, the 'yips' generally develop into a long-term movement disorder that influences an individual's ability to carry out a desired motor skill (McDaniel et al., 1989). Individuals who experience the 'yips' tend to report physical disturbances in movement that they cannot explain. Much of the evidence for the 'yips' has been anecdotal and is well documented by many sporting professionals. Bernhard Langer the golfer described the problem of the 'yips' when stating, "the 'yips' is a jerky, uncontrolled putting stroke that sends scores soaring. At one point I was yipping so badly that I four putted from three feet and actually hit the ball twice" (www.peoplejustlikeus.org/sports/berhard_langer.htm, visited, September 2003). Gavin Hamilton, a former international cricket all rounder (i.e., batter and bowler)

broke down with the 'yips'. He stated (The Mail on Sunday, 2002, pp 101), "I don't know what to do...when I bowl I've utterly no control over the ball". Similarly, the word champion darts player Eric Bristow suffered from the 'yips' at the pinnacle of his career when he found his arm wouldn't release the dart. He stated, "It's weird, frightening. There are a lot of people around who are timid and lack confidence that you could understand this happening to, but me? I have two bowls of confidence for breakfast every day!"

All these descriptions of the 'yips' are linked to physical disturbances in skill execution which result in the performer being unable to perform the task. However, whether these disturbances are physically or psychologically based has yet to be determined. It has been proposed that the 'yips' in golf are initially a physical problem exacerbated in stressful situations (McDaniel et al., 1989; Sachdev, 1992). An extremely small percentage of writers (Bindman & Tibbets, 1977; Crisp & Moldofsky, 1965), musicians (Jabusch & Altenmuller, 2004), typists, telegraphers and artists (Lim, Altenmuller & Bradshaw, 2001) all experience similar performance breakdowns to the 'yips' in sport. This conclusion is based on the similarity of physical symptoms involved in skill execution. Often described in the literature as focal dystonias, the problem results in involuntary movements such as spasms, twisting and posturing of a body part specific to the execution of the task. Focal dystonia affects the cheek muscles in musicians who play wind instruments and finger muscles in guitarists (Smith, Adler, Crews, Wharen, Laskowski, Barnes, Bell, Peltz, Brennan, Smith, Sorenson, & kaufman, 2003). Researchers have therefore linked the symptoms experienced by sports practitioners to those in occupational domains (McDaniel et al., 1989; Sachdev, 1992; Smith et al., 2000, 2003).

Research examining the 'yips' has focused primarily on golf-putting, therefore there is a lack of understanding of the disorder in other sports. McDaniel et al. (1989) concluded that the 'yips' were a similar problem to occupational dystonia and that the problem was primarily a physical rather than psychological disorder. However, they did make reference to two psychological constructs being influential in the 'yips'. They concluded that anxiety increased the severity of the symptoms and that those who have experienced the 'yips' endorsed at least one item related to obsessional thinking (i.e., thinking too much about things).

A further study by Sachdev (1992) supported the findings of McDaniel et al. (1989). Sachdev (1992) reported that golfers with the 'yips' had slightly higher self-reported anxiety and obsessional characteristics. This was interpreted to be a consequence of the 'yips', but not the cause. A further recent study with golfers indicated the presence of co-contraction (i.e., freezing of the affected muscles) during putting in 50% of the yips-affected and none of the yips-unaffected participants (Adler, Crews, Hentz, Smith, Mill & Caviness, 2005). They concluded the 'yips' in golf were a focal dystonia in the majority of golfers. However, this study failed to address the psychological mechanisms underpinning the 'yips'.

Recent studies by Smith et al. (2000; 2003) have provided the most comprehensive explanation of the 'yips'. Smith et al. (2000) illustrated that golfers with the 'yips' experienced increased heart rate, grip force and electromyography (EMG) activity in the wrist flexors and extensors. In a follow-up study examining individuals' definitions of the problem, Smith et al. (2003) categorised the 'yips' on a continuum by which focal dystonia (55%) and choking (22%) anchored the extremes. Nineteen percent (19.4%) of the 72 golfers provided definitions that contained symptoms of both dystonia and choking. It was proposed that the majority of golfers experience the

'yips' due to an interaction of these two factors. Thus, Smith et al. (2000; 2003) acknowledge that psychological factors are an important aspect of the 'yips' experience.

Evidence for the 'yips' initially being suggested as a purely psychological problem is scarce. Masters (1992) proposed that the 'yips' is an extreme form of choking. Recent evidence supports self-focus models of choking whereby individuals consciously try to control or reinvest over their actions (cf. Bawden & Maynard, 2001; Lewis & Linder, 1997). Bawden and Maynard (2001) suggested the 'yips' in cricket bowling shared many characteristics with choking. Bawden and Maynard (2001) stated all participants in their study cited high levels of self-consciousness as a personality trait, which possibly made them more susceptible to developing the 'yips'.

Despite this evidence, proposed interventions for the 'yips' have all tended to be concerned with technical modifications. Bernhard Langer has changed his grip on four separate occasions in an attempt to combat the 'yips' (White, 1993). One such method involved using a pendulum style broom-handle putter. These modifications do provide some temporary relief; however in most cases, there is a relapse to the jerks, tremors and spasms that they experienced previously (White, 1993). Whilst technical modifications can provide some relief for golfers, it is difficult to change the nature of the bowling action in cricket, the darts throw, the tennis serve, or the cuing action in snooker. For instance, Patsy Fagan the snooker player was forced into early retirement, as he could not execute a once previously smooth cuing action (Dobson, 1998). Therefore, there is a need for applied interventions, which can be developed for all sports skills affected by the problem.

The main purpose of this study was to take a step back from previous research and look at the 'yips' initially from an exploratory perspective. Sachdev (1992) tentatively

indicated that cricket, tennis, table tennis, and snooker were all affected by the problem. This was based on a self-report of activities affected, which were similar to the 'yips', rather than a full investigation of the symptoms experienced from a physical and psychological perspective. Empirical research has only really focused on golf-putting. Thus, the aims of this thesis were to establish the predominant sports afflicted by the problem and the symptoms experienced (Study 1), to examine the underlying psychological mechanisms of the 'yips' experience using a grounded theory approach in these sports (study 2), to establish if personality characteristics can make sports people more prone to developing the problem (Study 3), and to establish a psychological intervention that may limit or counteract the problem (Study 4). A timeline of this thesis can be seen in Appendix 1.

Study 1 utilised a mixed methods approach to examine the 'yips'. The purpose of this study was to explore the 'yips' phenomenon from a broad perspective and to establish whether other sport skills were effected by the problem. The study indicated that the pre-dominant sport skills affected by the problem were the sport skills of golf putting, the darts throw and the cricket bowling action. The findings tentatively suggested that the 'yips' were the same problem independent of sport type as in all cases, skill loss occurred as a result of physical disturbances in skill execution. Similarly, psychological symptoms were consistent across those sports affected.

Study 2 explored the 'yips' using a grounded theory based approach (Strauss & Corbin, 1990). The purpose of this study was to; establish whether the 'yips' were the same problem independent of sport type; establish potential psychological mechanisms underpinning the 'yips' experience; and to examine the first and subsequent experiences of the 'yips'. The investigation added support to the findings from study 1, in that, individuals who experienced the 'yips' suffered involuntary and physical

disturbances in skill execution. Furthermore, the study indicated that those individuals whom experience the 'yips' all cited psychologically significant life events at or around the time the 'yips' started. These findings shared similarities with recent research looking into the causes of certain types of movement disorders (e.g., Baker & Humblestone, 2005). In addition, it was highlighted that those suffering from the 'yips' displayed obsessional, perfectionist and self-conscious characteristics. These findings were similar to those reported in the occupational dystonia literature (Bindman & Tibbets, 1977; Jabusch & Altennuller, 2004; Jahanshahi & Marsden, 1988).

The following investigation examined whether certain types of people were more susceptible to developing the 'yips' using a quantitative based design. The study looked at a group of 'yips' versus 'non-yips' population to establish the relevance of the findings from study 2, and moreover, to establish whether these characteristics were personality traits of those with the 'yips'. The findings of the study illustrated that those who suffered from the 'yips' displayed significantly higher levels of perfectionism, obsessionalism and reinvestment than the non-yips group. The investigation suggested that individuals may use their perfectionist thinking style in a dysfunctional manner, which makes the life event (study 2) become more profound (Stumpf & Parker, 2000).

Study 4 utilised a novel form of intervention to counter the 'yips'. The aim of the study was to establish whether, by treating the negative emotions that occurred in the initial experience, the 'yips' symptoms would subside. Furthermore, the study aimed to establish whether the intervention protocol was effective, that being the Emotional Freedom Technique (Craig, 1999). The investigation highlighted that in both cases, improvements were observed in performance across all dependent measures upon

completion of the intervention. The study tentatively indicated that the 'yips' were caused by psychologically significant life events in the two cases presented.

CHAPTER 2

ground with performance problems experienced in occupational tasks such as focal dystonia. This is based upon the physical disturbances which occur in skill execution.

2.1.1 PERFORMANCE PROBLEMS: THE 'YIPS'

The 'yips' have been defined as a psycho-neuromuscular impediment affecting the execution of the putting stroke in golf (Smith et al., 2000). The problem results in performers being unable to perform a routine motor skill that prior to the onset of the 'yips' was a relatively simple task. The most high profile cases have come from golf (e.g., Bernhard Langer and Sam Torrence), darts (e.g., Eric Bristow) and cricket (e.g., Gavin Hamilton and Keith Medlycott). Much of the research into the 'yips' has been conducted in golf (Adler et al., 2005; McDaniel et al., 1989; Sachdev, 1992; Smith et al., 2000; 2003) with only one study conducted outside this context in cricket bowlers (Bawden & Maynard, 2001). At present, the research has failed to address a number of issues adequately. A prominent area is the aetiology of the problem. A level of confusion regarding the aetiology still exists and as a result, applied interventions have not been developed to help athletes overcome the problem. The theoretical explanations of the central causes of the problem have focused around stress and dystonia. Some authors have concluded that the 'yips' is initially a physical problem which is made worse by stress (Adler et al., 2005; McDaniel et al., 1989; Sachdev, 1992). This would result in golfers afflicted with the problem attempting behavioural modifications such as a change of grip on the putter (White, 1993). Other authors have suggested that the 'yips' is a psychological problem, which share many similarities with a severe form of choking (Bawden & Maynard, 2001; Masters, 1992). Therefore, athletes utilise psychological techniques such as behavioural conditioning to help overcome the problem (Bawden & Maynard, 2004). In contrast, two other research studies have suggested the 'yips' are a problem, which lies on a continuum by which

focal dystonia, and choking anchor the extremes (Smith et al., 2000; 2003). Despite the acknowledgement that other sport skills are affected (McDaniel et al., 1989; Sachdev, 1992), little research has been conducted to assess the problem in other sports. This broader evaluation of the problem across a variety of sports may assist in understanding the aetiology of the problem. An overview of the key research studies will now be sought which will provide the rationale for the subsequent sections which appear in this review of literature.

McDaniel et al. (1989) conducted the first piece of academic work regarding the 'yips' problem. The study provided a case study of a 35-year-old right-handed male professional golfer who had requested a neurological evaluation for the 'yips'. The patient described an involuntary 'jerk' or 'pulling' sensation of his right hand and wrist while putting. The patient reported that the 'yips' only occurred during tournament play and was made worse by anxiety. The golfer had attempted a number of compensatory strategies to help him overcome the problem, which included altering handgrip and visual fixation. Neither of these strategies was effective. However, the golfer did find some success by learning to putt left handed, as the 'yips' did not affect the new technique. Recent research suggests that the 'yips' are an overuse problem, thus the more times one uses a desired motor programme, the more likely they will experience the 'yips' (cf. Lim et al., 2001). By changing the motor programme, one's 'yips' symptoms should subside. An alternative explanation for this improvement may be that by changing the environment, one is merely breaking a conditioned response (cf. Pavlov, 1927). As soon as aspects of the environment become familiar again (e.g., decision making processes), the 'yips' symptoms return. A high profile example of this is Bernhard Langer having to change his grip of the putter on four separate occasions. However, each time the 'yips' have returned to affect the new skill (White, 1993). This may suggest a psychological cause may be at the root of the problem.

McDaniel et al. (1989) undertook a survey to determine the prevalence, characteristics, spectrum of severity, circumstances of occurrence, hereditary contributions, and neurological correlates of the 'yips'. The questionnaire was 69 items long and was constructed with the aid of the golfer afflicted with the problem. The questionnaire included a number of sections including demographic and physical characteristics, medical history, psychiatric symptoms, medication exposure and family histories. Those players who claimed to have suffered from the 'yips' were required to answer the remaining 42 questions ascertaining information regarding the phenomenology, location, severity, treatment and motor concomitants of the disorder. Care should be taken interpreting these results, as the professional golfer used in the design may not have been representative of the 'yips' population.

A total of 335 questionnaires (male sample) were analysed due to a small response rate from females. Of the sample, 28% reported to be suffering from the 'yips'. The golfers described movements as jerks (49%), jerks and tremors (9%), tremors (8%), jerks and spasms (7%), and spasms (4%). Freezing was described by 61% of affected golfers especially during the forward stroke to the hole. The majority of the golfers suffered from the 'yips' when putting (54%) or chipping (40%). A number of compensatory strategies were developed by the participants which, predominantly involved a technical change in the way they putted, to overcome the problem. A number of other activities were cited as being affected which included playing billiards and musical instruments. In addition, 25% reported other body parts to be involved including various combinations of arms, shoulders, legs, neck, jaw, and eyelids. When golfers affected by the 'yips' were compared with those unaffected, three items differentiated between the two groups. 'Yips' victims were older, had played golf for a longer time period and endorsed one item assessing obsessional thinking. Similarly,

Sachdev (1992) reported that golfers with the 'yips' had a higher tendency towards obsessional thinking.

The prevalence of obsessional characteristics warrants further discussion and suggests psychological variables may play a role either in 'yips' onset, long-term manifestation or a combination of the two. In a previous study of occupational dystonia, Ferguson (1971) found that 8% of affected telegraphers suffered from obsessional neurosis, a prevalence in excess of that in the general population. Toichi, Sakihama, Sakamoto, Asanuma, Matsumoto and Kaji (2001) reported obsessional personalities in patients with writer's cramp (an occupational dystonia - a syndrome similar to the 'yips' – see section 2.2) as opposed to disease and control groups. These findings are in contrast to those of other investigators who have reported no increased prevalence of abnormal behavioural traits in individuals with occupational dystonia (Jahanshahi & Marsden, 1988; Roth, 1980; Sheehy & Marsden, 1982). Therefore, a line of enquiry which needs consideration is the role which personality characteristics provide a link between occupational movement disorders and the 'yips'.

To try and establish the exact aetiology of the 'yips', Sachdev (1992) assessed the clinical characteristics of 20 male golfers suffering from the 'yips' and 20 matched controls. The aim of the study was to establish whether the 'yips' was a form of anxiety-based disorder or a physiological problem. Participants were required to complete several self-report measures to establish their psychopathology. In addition, several neuropsychological tests were performed to establish mental and motor speed and visuomotor coordination. Sachdev (1992) indicated that there were no differences in self-report measures between golfers with the 'yips' and controls and therefore concluded that the 'yips' was not an anxiety-based disorder.

A number of interesting findings came out of the research. Golfers who suffered from the 'yips' had a mean age of 54.5 years, initially experienced the problem at a mean age of 31.1 years and had experienced the problem for a mean of 19.4 years. For 85% of golfers, the 'yips' were first experienced during a tournament whilst playing under pressure. Of those golfers, six reported to be under moderate stress at the time they developed the disorder. Most of the golfers experienced movement problems when they were 6-8 feet away from the hole. A possible explanation for this is that expectation of success increased at distances which were nearer to the hole. For 75% of the golfers, the 'yips' were only experienced during tournaments. The researcher reported that corrective strategies were helpful in alleviating the problem for 30% of those with the 'yips'. The golfers had established 'trick' strategies including changing their putter, changing their grip on the putter and altering their visual fixation on the ball. Golfers with the 'yips' reported difficulty using visualisation before putting, a skill which was not a problem before the onset of the 'yips'. Interestingly, six of the golfers reported that they had problems similar to the 'yips' in other tasks such as typing, writing, playing tennis, table tennis, snooker and cricket bowling. Those with the 'yips' also had a slightly higher tendency towards obsessional thinking and self-reported anxiety. This was interpreted to be a consequence of the 'yips', but not the cause. This was based on the high prevalence of physical disturbances which occurred during skill execution.

More recently, Adler et al. (2005) indicated the presence of co-contraction (i.e., freezing of the affected muscles) during putting in 50% of the yips-affected and none of the yips-unaffected participants. They concluded the 'yips' in golf were a focal dystonia in the majority of golfers. This study failed to address the psychological symptoms of the 'yips'.

Contemporary research has also examined the 'yips' from a multidisciplinary perspective in the sport of golf (Smith et al., 2000). The first phase of the study involved sending a questionnaire to 2630 tournament players on the prevalence and characteristics of the 'yips'. Of the 2630 tournament players, 1031 (39%) responded, and 52% perceived they experienced the 'yips'. To ensure the 1031 respondents were good golfers who had acquired the 'yips' and not just bad putters, only males with a 10 and under handicap (453 'yips' and 393 non-'yips') and females under 12 handicap (23 'yips' and 20 non-'yips') were included in the analysis (n = 889). Of 435 'yips' affected golfers, most anxiety provoking situations were, leading tournaments; tricky putts; specific competitors and the need to make easy putts. The authors suggested that these situations might interact with personality, cognitive appraisal factors and golf-specific situations to precipitate high arousal, which, may facilitate or debilitate optimum performance.

The second phase of the study involved measuring putting responses in golfers who were (n = 4) and were not (n = 3) affected by the 'yips'. Heart rate (HR), grip force (GF) and electromyogram (EMG) were recorded as all participants putted in difficult scenarios. Competition play induced the 'yips' response, and putts between 2 and 3 feet were most problematic, including fast, downhill, left to right breaking putts. During putting, golfers with the 'yips' had increased HR and GF compared with non-affected golfers. Furthermore, the researchers reported increased EMG activity in the wrist flexors and extensors during putting. It was concluded that 'yips' affected golfers represent a continuum that is anchored at either end by anxiety and focal dystonia.

In an attempt to test the continuum proposed, Smith et al., (2003) conducted a study looking at golfers' perceptions of the 'yips'. It was hypothesised that a golfer's

perception of what is happening in the mind, body or both, would help investigators determine the aetiology of the 'yips'. A preliminary golf questionnaire was developed and stationed on the Mayo Clinic website (www.mayo.edu/research/yips/) for those who were interested in finding help with the 'yips'. The questionnaire obtained demographics, a 'yips' history and the golfer's subjective perception or definition of the 'yips'. In this study, 'yips' descriptors ranged on a continuum from symptoms of dystonia (55%) to choking (22%). Nineteen percent of the 72 golfers provided definitions that contained symptoms of both dystonia and choking. The researchers reported their surprise at the high incidence of 'yips' affected golfers who met the inclusion criteria used to diagnose dystonia. The general incidence of focal dystonia is 30/100,000, whilst in musicians, the incidence is 1 in 200 to 1 in 500 (Smith et al., 2003). They suggested that musicians, like golfers, repetitively perform fine motor skills under conditions of high arousal, experience intense concentration and fear of not performing well. Supporting the high prevalence of dystonia-like symptoms in golfers is the fact that accomplished pianists and guitarists, who perform repetitive hand movements, experience dystonia more often than other musicians. Smith and colleagues concluded that the 'yips' represents a continuum whereby a focal dystonia ('Yips' Type I) and choking ('Yips' Type II) anchor the extremes. The more one practises golf, the more rounds played per year, the more clinics, years experience, intensity, concentration and tension, the more likely it is that the golfer will acquire the 'yips' type I. They concluded that the 'yips' type II golfers experience choking, as a consequence of self-focused attention, performance anxiety and possible over-analysis.

Despite the large sample size utilised, the research was only conducted in golf. Increasing anecdotal evidence would tend to support the claims made by McDaniel et al. (1989) and Sachdev (1992) that other sport skills are affected. In his recent autobiography Nasser Hussain, the former England cricket captain dedicated a whole

chapter of his book to the childhood cricketing experiences he went through. Prior to developing the 'yips', Hussain (2004, p. 37) was a future star in the making, largely due to his brilliant bowling. He stated: "All I did was run in and lob the ball up and take great amusement from the fact that nobody, least of all me, knew how I was causing so much trouble for the batsmen by spinning it so much." Then, much to his bemusement, Hussain (2004, p. 38) went on to give a graphic account of how the 'yips' began to affect his bowling, his relationship with his father and the career destroying potential the problem carried:

> "...when I was fifteen...You see, that's when I had the only real crisis of my cricketing life, one that not only threatened my whole future in the game but caused a considerable strain on my all important relationship with my Dad and almost forced me to rebel against the carefully chosen life Dad had mapped out for me. It all began when I literally shot up in height. The little kid was a foot or so taller overnight, and it was the beginning of the end of my life as a demon bowler...life was about to change forever. There I was, Captain of England Schools and being tipped to be England's next leg-spinner. I had my usual amount of time off during the winter, when I shot up in height, as I say, and went down to the cricket school to start preparing for another season. But I couldn't hit the cut surface. I was bowling into the side netting, bowling into the roof, bowling deliveries that would bounce three times before they reached the batsman...and I just couldn't believe what was happening...At first he (i.e., his father) must have thought I was taking the piss, doing it deliberately...But, God, was I trying – and the harder I tried the worse it got. This was an

absolute nightmare and, as it went on, things grew more and more tense between me and Dad".

It is important to investigate whether psychological factors precede the development of the 'yips' problem before it can be concluded that the disorder is purely physical. A recent study looked at the personal experience of 'yips' affected cricket bowlers (Bawden & Maynard, 2001). The main aim of this study was to gain a greater understanding of the psychological characteristics of the 'yips' experience in cricketers and to identify the contributing factors that are common across these experiences. This included an examination of the physical symptoms experienced when bowling in cricket. The predominant perceived sensations experienced by bowlers were tension in the hand, and subsequently, a feeling of not being able to release the ball, and consequently a feeling of being out of control. This finding is in contrast with previous golf studies, which have suggested that symptoms such as jerks, tremors and freezing occur (McDaniel et al., 1989; Sachdev, 1992; Smith et al., 2000; 2003). This could be due to differing mechanisms taking place during the 'yips' incidence based on the task-constraints imposed. Throughout the initial experience of the 'yips', the bowlers appeared to follow a similar sequence of events to that of choking as outlined by Baumeister (1984). The authors reported higher order themes of cognitive anxiety, inappropriate focus, increased self-consciousness and conscious control of movement. For all participants, bowling had reached the autonomous stage of functioning; hence consciousness did not hold this information and attempts to consciously control movement had a detrimental effect on performance (Masters, 1992).

Bawden and Maynard (2001) suggest that the 'yips' in bowling share many common characteristics with sport performance phobias. Recalling experiences of when individuals had 'yipped', Bawden and Maynard (2001) reported that individuals

perceived themselves to be trapped in this choking process with no means of escape. This was magnified when a no ball or wide was bowled, resulting in bowlers having to repeat that delivery. This feeling of being trapped appears to be a strong contributor to the anxiety experienced by bowlers. Increased anxiety resulted in feelings of extreme panic and participants described many of the symptoms that are customarily associated with panic disorders, which could be linked to social phobias (Silva, 1994). What is unclear from this study is whether increased anxiety causes the feeling of tension in the hand, or whether overuse of the motor programme has caused bowlers to feel tension in the hand.

The initial causes for the 'spasms', 'jerks', and 'tremors' experienced by those with dystonia have been heavily debated in the literature with some authors suggesting it is primarily a psychological disorder (Bindman & Tibbetts, 1977; Crisp & Moldofsky, 1965; Culpin, 1931; Pai, 1947; Walton, 1985). Psychological explanations for the disorder have been related to anxiety, hysteria, personalty disorders, psychodymaic conflict, simple phobia and obsessionality. Psychosocially stressful life events have been found repeatedly in 20% - 50% of the patients studied before the onset of movement problems (Jahanshahi & Marsden, 1988; Schmidt, Wisser, & Heitmann, 1994; Schweinfurth, Billante & Courey, 2002). It is important to distinguish whether the 'yips' in other sports are the same problem as in golf. This will enable research interventions to be designed and utilised which are generic across sports. Furthermore, it is imperative that research examines the psychological factors, which precede and follow the 'yips' experience across sports affected to see where differences and commonalities emerge. Such psychological characteristics could help to explain why some individuals experience this phenomenon and others are not affected.

able to perform the desired move and, an inability to land a particular move when previously able.

Although Tenn's (1995a) study provided practical guidelines for recognizing LMS, it lacked theoretical and scientific underpinning as it was more an article directed at coaches. It would appear LMS affects other sporting activities, not just trampolinists. Interference (i.e., a disruption to the skill process) in skilled performance has been shown to affect a wide variety of sports, including javelin throwing (Collins et al., 1999), running (Dickenson, 1994), football (Crampton & Adams, 1995), and hurdling (McFarlane, 1990). Similarly, the 'yips' been shown to interfere with the skills of golf-putting (Adler et al., 2005; McDaniel et al., 1989; Sachdev, 1992; Smith et al., 2000; 2003) and cricket bowling (Bawden & Maynard, 2001). Therefore, it would seem appropriate to conduct a more thorough assessment across a wider range of sports, which could potentially provide a more comprehensive understanding of the problem.

Silva (1994) examined a performance problem similar to the concept of LMS and the 'yips', termed sport performance phobia (see section 2.1.3 for a thorough review). Silva (1994) proposed that performance phobias involve fear of a sporting environment. When presented with a specific stimulus, the athlete becomes fearful of the situation that results in a compelling desire to avoid the object. When experiencing the performance phobia the athlete will often experience embarrassment, guilt, anxiety and a decrease in self-confidence.

Collins et al. (1999) contended that athletes experiencing LMS remain in custody of the motor programme for the motor skill and are still physically capable of performing the skill. Utilising a case study approach, an intervention process contrasting correct and incorrect techniques, internalising the correct action, and providing a gradual re-

introduction into the pressures of the competitive environment enabled a successful return to form for the athlete. Whether this approach would benefit those suffering from the 'yips' is unclear. The physical disturbances, which occur in the 'yips' experience, are involuntary (see section 2.1.1) as Wertz (1986, pp. 97) describes:

> "It's like being trapped inside a burning house and not being able to get out...then suddenly it happens, your palms get slick and the putter develops a mind of its own...you jab the putt...welcome to the club...a case of the 'yips', golf's gift to the human nervous system."

In contrast, LMS involves the loss of a given skill. It is not clear whether LMS involves physical disruptions in the skill, therefore whilst the long-term effects of the two problems may be the same, their manifestation in terms of skill loss may be different.

The most comprehensive study thus far was conducted by Day et al. (2006). This study examined the psychological causes of, and responses to, LMS using semi-structured interviews with 15 elite trampolinists. The sample size was deemed appropriate as no new data themes emerged at this point (Hanton & Jones, 1999). The responses were analysed using inductive content analysis, which led to a total of 54 raw data themes forming 6 general dimensions. The general dimensions consisted of: positive experiences prior to LMS, unfavourable skill acquisition, negative affect, poor coping and external pressure, change in cognitions surrounding the move, and perceptions of pressure and the need for social support.

All participants described either, an enthusiasm for training, or had perceptions of good progress in skill development prior to the onset of LMS. Participants highlighted the positive nature of their experiences to illustrate how things changed when they

suffered from LMS. As one participant described: "I was doing really well and things were just getting better and better. That's what made it worse when I lost them, all our plans had been ruined." Day et al. (2006) suggested caution when interpreting this theme. The authors suggested that participants' accounts of experiences prior to LMS may have been clouded by the occurrence of the syndrome, therefore the prior experiences may seem more positive following the negative training experiences during LMS.

One of the major debates surrounding the 'yips' is whether they are a physically or a psychologically based problem. Day et al. (2006) provided some insights into warning symptoms experienced by those with LMS at the initial onset. This may provide a framework into the potential causes of the 'yips'. Day et al. (2006) indicated that eleven participants reported that LMS was only identified when participants became physically unable to perform the skill. In all cases, emotions preceding LMS were perceived as important factors in its development. One of the main emotions noted by all participants was fear of the move itself. Why or how this fear came about was unknown, but it does tentatively suggest that psychological antecedents maybe the starting point for this loss of skill. Therefore, research needs to clarify whether psychological antecedents play a role in the onset of both LMS and the 'yips'. It could be that the 'yips' and LMS are the same thing.

One of the main problems with the 'yips' is the fact that it becomes so ingrained, and thus develops into a long-term disorder. Why or how this happens is unclear although numerous suggestions have been given (Bawden & Maynard, 2001; Smith et al., 2000; 2003). The recent study by Day et al. (2006) may help to add understanding as those with LMS suffer similar long-term skill loss. Participants noted an over-analysis of the skill and negative reactions towards both the skill and others talking about the skill.

Twelve of the participants noted excessive thoughts about the mechanical aspects of the skill, which in turn led to over-analysis. Research examining the 'yips' has suggested obsessive thoughts may play a role in its onset. McDaniel et al. (1989) highlighted that 'yips' affected participants endorsed one item assessing obsessional thinking. Furthermore, Sachdev (1992) reported golfers with the 'yips' recorded slightly higher levels of anxiety and obsessional characteristics. Therefore, clarification is required as to how these obsessional thoughts develop the problem into a long-term syndrome.

Day et al. (2006) also described the emotional reactions to losing the skill. These ranged from crying, depression, and frustration to feelings of stupidity. These feelings occurred as a direct result of not being able to perform a skill that they knew; that previously they could perform with ease. Previous research examining the 'yips' has failed to address how the 'yips' affects thoughts and feelings. Both the 'yips' and LMS result in long term skill loss therefore, it could be expected that similar symptoms may emerge.

There is an appreciation within the academic community that severe performance problems occur within sport (Day et al., 2006). Whilst research is in its early stages, labels for these performance problems are now emerging. One such problem described as LMS would appear to show similarities with the 'yips' experience in sport and common sport performance phobias. These occurrences happen for no apparent reason (Tenn, 1995a), and often result in avoidance behaviour and excessive thoughts about the skill. Individuals experience a sudden freezing of a skill, which makes them unable to perform the skill. The physical symptoms, which occur within LMS, need to be more fully explored in order to establish the relationship between LMS and the 'yips' in sport.

2.1.3 PERFORMANCE PROBLEMS: SPORT PERFORMANCE PHOBIAS

Bawden and Maynard (2001) first made the link between sport performance phobias and the 'yips' in cricket bowlers. The outcome of a 'yipped' delivery would either be a head high full toss, a ball that bounced several times before reaching the batsman, or a wide. All of these types of delivery constitute an illegal delivery. This means that the bowler must repeat the skill until 6 legal balls have been bowled, which represents the completion of an over. Due to the requirements of the task at hand, bowlers reported feelings of extreme panic, which developed into a longer-term avoidance of the bowling environment, due to the need to complete the over.

Silva (1994) presented two cases, one of which was a tennis player who developed a phobic response to 'coming to the net'. The second case study was a baseball player who developed a phobic response about throwing the ball back to the pitcher. Both these cases will be explored in more detail in this section of the review.

Silva's (1994) rationale for using the term 'sport performance phobia' was based upon the definition of a phobic response. The DSM IV (www.psychiatryonline.com, visited, September 2007) defines a phobia as, "a persistent fear of one or more social or performance situations in which the person is exposed to unfamiliar people or to possible scrutiny by others". Silva (1994) made the link by suggesting that sport performers sometimes possess irrational fears that relate to a specific performance parameter that they were fully capable of executing prior to the onset of the phobic response.

Sport performance phobias share common characteristics with the simple, social and agoraphobic syndromes. Simple phobias are characterised by a concern over a single object, activity or situation. This concern is often irrational as the subject may or may

not have experienced anything of direct consequence from the feared stimulus. Social phobia is more generalised than a simple phobia. The concern is often due to preoccupying expectations of personal embarrassment, feeling a loss of control in a group situation and excessive concern about social evaluations and comparison. Finally, agoraphobia is characterised by a generalised and excessive concern that revolves around a loss of control.

There is a clear link between sport performance phobias and the 'yips'. Similar to the unexplained nature of the 'yips' experience, athletes suffering from sport performance phobias often experienced no concern or performance anxiety concerning the specific skills that became phobic. Silva (1994) illustrated a high profile case of Steve Sax, an American baseball player who developed a phobia about making routine throws from his position at second base to first. No other aspects of his game were affected other than the throw from second to first. Similarly, the 'yips' tend to disable specific aspects of a person's game, such as putting or chipping in golf, the tennis service, the darts throw, or the cricket bowling action to name but a few (Sachdev, 1992). It was not clear what caused this phobia to occur.

As stated previously, two case-studies were provided by Silva (1994) to demonstrate the sports performance phobia. The first was of a 20 year old female collegiate tennis player who developed a phobic response about coming to the net. The initial incident resulted in the player coming apprehensively to the net on a ball she should have put away to win the point. Instead, she froze, and hit the ball into the bottom of the net and lost the point. She reported feeling sick to the stomach and light-headed. Following the initial experience, the player felt as if she had no control over the racquet when approaching the net, and experienced extreme fear. A cognitive behavioural intervention was implemented over a 7-week period, which consisted of:

identification, cognitive restructuring and covert conditioning. The intervention resulted in an improvement in her play at the net and also her self belief returned as a tennis player. This intervention was similar to the Bawden and Maynard (2004) intervention used in cricket bowlers with the 'yips'. Bawden and Maynard (2004) reported similar improvements after the intervention. From applied experience, it is understood that the 'yips' often come back, even after the initial improvements obtained through cognitive behavioural interventions.

Similar to the Steve Sax case highlighted, the second case study was of a 17-year-old male baseball player, who developed a phobic response of throwing the ball back to the pitcher after receiving the ball. Similar to the feelings described by bowlers in cricket (Bawden & Maynard, 2001), the subject reported a weird feeling when he let go of the ball. The subject indicated he did not pay much attention to the feeling until later in the game when it happened again. At this point the subject reported feelings of panic, bewilderment, and confusion. The same cognitive behavioural intervention was employed as outlined in the previous case. The focus of the cognitive restructuring phase was designed to bring the athlete's attention to the simplicity of the action in relation to other throwing tasks he could complete.

Neither of the two case studies explained why the irrational fears came about in the first place. Although the intervention eliminated the symptoms, which arose from the initial outbreak, it is quite possible a trigger within the environment could re-engage the initial response (cf. Grand, 2001). In the latter case study, errant throws decreased from 40/50 down to single figures. Despite this dramatic increase in performance, the individual was still concerned the problem would return.

Stidwell (1994) suggested that sport performance phobias are not limited to elite athletes, as it can affect athletes of all abilities. Stidwell (1994) cited a case study of a

21-year-old female college student. At the age of 12 she had been hit in the head with a bat and since that day avoided playing baseball. The intervention delivered was based upon Bandura's (1977) four modes of influence for building self-efficacy: vicarious experience, verbal persuasion, successful accomplishments and emotional or physiological arousal. Following the intervention the subject experienced a decrease in physiological arousal and reduced anxiety, which resulted in decreased symptoms associated with the phobia.

Although both authors were evaluating the term 'sport performance phobias', closer examination of the detail suggests they were examining different problems. Silva (1994) was investigating a specific problem relating to an individual's ability to carry out a movement. This was followed by fear and avoidance behaviour, similar to the experience of cricket bowlers described by Bawden and Maynard (2001). In contrast, Stidwell (1994) was examining a specific event which occurred prior to the onset of a phobia. In the case of Stidwell (1994), a cause and effect could be distinguished, which clearly explained the resultant phobia.

Bawden and Maynard (2001) suggested that the 'yips' share similarities with sport performance phobias. Similarly, there is evidence within dystonia research, which suggests that a social phobia exists prior to onset in individuals who suffer from a range of dystonic problems (cf. Gundel, Wolf, Xidara & Baumann, 2001). Social phobia has been reported prior to individuals developing chronic organic conditions such as stuttering and essential tremor (George & Lydiard, 1994; Oberlander, Schneirer & Liebowitz, 1994; Stein, Baird &Walker, 1996). Meares (1971) reported that patients with Spasmodic Torticollis (ST) (i.e., cervical dystonia) who remitted had a significant higher score of neuroticism (Eysenck Personality Inventory; Eysenck & Eysenck, 1964) and anxiety (Taylor Manifest Anxiety Scale; Taylor, 1951) than the

remainder of participants. Scheidt, Heinen and Nickel (1996) found that nearly 54% of patients with ST felt they were observed and critically looked on by the public and had therefore withdrawn from social activities. A more recent study (Scheidt, Heinen, & Nickel, 1996) found a particular high prevalence of social phobia in patients with ST, which suggested a subgroup of patients with ST may be more amenable to specific psychotherapeutic interventions. Similarly, Jabusch et al. (2004) and Jabusch and Altenmuller (2004) have shown that musicians with focal dystonia more often reported social phobia and specific phobias than healthy musicians. Whilst there is a dearth of research suggesting alternative causes for occupational dystonias (see Lim et al., 2001), it is clear that psychological influences cannot be ruled out.

Why or how social phobia increases the risk of developing dystonia and other movement disorders remains unclear. It is clear however, that social phobics usually experience performance decrements when in social situations. Woody (1996) stated that excessive self-focus creates an increase in negative self-statements by creating internal attributions for skill failure, which subsequently leads to increases in self-scrutiny and self-consciousness. Poor social performance then results in negative feedback, which in turn increases levels of anxiety and perceived competence (Curtis & Miller, 1986). The increase in anxiety results in the individual focusing more attention on oneself, thus increasing the anxiety further, and the individual then finds themselves in a negative cycle. The process described is very similar to the one experienced by those with the 'yips' (Smith et al., 2000; 2003). The factors that underpin social phobia and the subsequent behavioural effects (i.e., physical disruptions in skill execution) need to be explored in more detail to establish the relationship between phobia and the 'yips'.

2.1.4 PERFORMANCE PROBLEMS: SECTION SUMMARY

Performance problems such as LMS would appear to involve the loss of a given skill, whereas in contrast the 'yips' would appear to manifest in physical disruptions which occur during skill execution. Sport performance phobias would appear to share more common ground with the 'yips' than LMS. Firstly, they result in long-term performance decrements. Secondly, the phobic aspect would appear to share similarities with those suffering from dystonia. However, it would appear the 'yips' share more common ground with occupational dystonias. Based upon the limited understanding of the 'yips', a review of the most pertinent aspects of this research will now be sought, where links between the two areas will emerge.

2.2 FOCAL DYSTONIA

The 'yips' have been described by some researchers as a focal dystonia exacerbated by stressful situations (Adler et al., 2005; McDaniel et al., 1989; Sachdev, 1992). The rationale behind this categorisation is due to the similarity and involuntary nature of the physical symptoms experienced which were described in section 2.1.1. The syndrome is characterised by involuntary or sustained muscle contractions that often result in twisted or abnormal positions. These symptoms are similar to those experienced by musicians (Altenmuller, 1998; Leinjse, 1997a, 1997b; Merimann, Newmark, Hochberg, Shahni & Leffert, 1986), performing artists (Ledermen, 1994) and those with writer's cramp (Nakashima, Rothwell, Day, Thompson, Shannon & Marsden, 1989). Focal dystonia can affect any part of the body including the arms and legs, trunk, neck, eyelids, face or vocal cords (Lim et al., 2001). Most of the research in golf has suggested task specific involuntary or sustained physical movements occur in the forearms when putting (Smith et al., 2000; 2003). Similar to the 'yips', focal dystonias become very ingrained, and are thus extremely difficult to treat (Lim et al.,

2001). Although the term 'focal dystonia' has been applied to the 'yips' in golf-putting, very little is known about the physical and psychological symptoms experienced in other sports, which are supposedly affected by the problem. This is where the confusion exists. Former England Davis Cup Captain, David Lloyd (http://news.bbc.co.uk/sportacademy/hi/sa/treatment_room/newsid_3035000/3035268.stm, visited, September 2004), described what he called the 'yips' in tennis serving:

> "There are two things that happen. Firstly, you find it very difficult to toss the ball (before serving). Also, your legs turn to jelly and you can't run. You can't get the ball out of your hand sometimes. You actually imagine the ball is stuck in your hand. It's a terrible feeling because there are all these people watching and you can't throw it up!"

It suggests that other sports are affected by the problem, based upon the physical symptoms (i.e., can't throw the ball up and legs turn to jelly) experienced, which occurs in task execution. Indeed, the Scientific Advisory Board of the Dystonia Medical Research Foundation in 1984, suggested that tasks affected require either: highly repetitive movements, extreme motor precision and interplay between conscious modulation, and a repetitively executed motor plan (Wilson, 2000). This categorisation would appear to share commonalities with fine, closed, self-paced and discrete skills in sport (Honeybourne, Hill & Moors, 1996). This would certainly suggest that skills such as the darts throw, the tennis serve, the cricket bowling action, the basketball free throw to name but a few are all susceptible to the 'yips'. Therefore, it would seem appropriate to examine other sports skills so that appropriate diagnostic tools can be designed.

Focal dystonias would seem to affect tasks, which are under constant scrutiny in everyday life. It affects skills in different ways. For instance, individuals with writer's

cramp can often use their hands for activities except writing. When they begin to write they will often experience an involuntary pull or a jerk, which results in extension or flexion of one or more fingers or the wrist (Smith et al., 2003). Musicians develop a similar involuntary flexion or extension of the fingers or wrist that is involved with playing the instrument (Smith et al, 2003). Dentists and surgeons with focal dystonia experience involuntary movements when carrying out precision tasks (Smith et al., 2003). Those with spasmodic dysphonia (SD), a focal dystonia of the voice cords, experience involuntary contractions of the laryngeal muscles (Shaefer & Freeman, 1987). There is a suggestion that SD is the problem singers experience when they find they can no longer resonate when on stage (Lim et al., 2001). Those who experience hemifacial spasm (HFS) suffer from involuntary contractions of the facial nerve (Tan, Lum, Chong, Chan, Gabriel & Lim, 2005). Blepharospasm, a form of focal dystonia of the eyelid, is characterised by continuous intermittent spasms. Certainly, the loss of a given skill such as playing a musical instrument, writing or singing is comparable with the 'yips' in golf and those suffering from LMS.

Dystonia may be categorised by the age of onset, the aetiology or the distribution. Dystonia may be focal: involving a single body part; segmental: involving adjacent body parts (face and neck); hemi: involving multiple unilateral parts; multi-focal: involving multiple adjacent or non-adjacent parts: and generalised: involving the legs as well as other body parts. Focal dystonia is further classified as simple (e.g., simple writer's cramp) or complex (e.g., also, when using utensils for eating or when buttoning shirts). These classifications can be compared to previous research examining the 'yips' in golf. For example, McDaniel et al. (1989) illustrated that 25% of the golfers suffering from the 'yips' also reported other body parts to be affected, which included various combinations of arms, shoulders, legs, neck, jaw, and eyelids. Similar to the complex classification of focal dystonia, Sachdev (1992) reported that

golfers suffered from the 'yips' in other activities such as typing, writing, tennis, table tennis, snooker and cricket bowling. This was based upon the nature of physical symptoms experienced by those suffering from the problem.

Obviously the loss of a given skill in environments which involve constant scrutiny, will result in a range of psychological symptoms. A recent study suggested hemi-facial spasm (HFS) symptoms, particularly when severe, cause social embarrassment, mental distress and effects the quality of life (Tan, Chong, Lum & Lim, 2004). It has been proposed that anxiety tends to increase the severity of the problem. For instance, Tan et al. (2005) highlighted, that the severity of HFS positively correlates with the severity of accompanying psychological symptoms. Caird (1999) indicated that eating in public was a constant source of considerable anxiety and embarrassment for patients trying to combat the effect of tremor on their table manners. Jahanshahi (2000) found that, in a sample of 72 patients, 80% reported stress and self-consciousness which increased the severity of dystonia. Masters, Pall, MacMahon and Eves (2007) suggest that participants suffering from movement disorders tend to become more aware of their mechanics over time. Grattan, Ghahramanlous, Aronoff, Wozniak, Kittner and Price (2001) have shown that individuals with stroke were described as highly self-conscious or as 'deep thinkers'. Paying attention to one's movements can cause problems as consciousness no longer holds the knowledge base required for performance (Masters, 1992) (see section 2.5.3). It could be that certain personality characteristics pre-dispose individuals to developing the various forms of focal dystonia.

2.2.1 FOCAL DYSTONIA: PERSONALITY FACTORS

In recent years there has been a trend to examine personality characteristics, which may make someone more susceptible to developing focal dystonia and related

movement disorders (e.g., Broocks, Theil, Angerstein & Dressler, 1998; Jabush & Altenmuller, 2004; Jabusch et al., 2004; Munhoz, Teive, Coletta, Camargo & Werneck, 2005; Toichi et al., 2001). Researchers have exemplified those with focal dystonia display more obsessive-compulsive characteristics (cf., Bihari, Pigott, Hill & Murphy, 1992; Broocks et al., 1998; Cavellaro, Galardi, & Cavallini, 2002; Kubota, Murai, & Okada, 2001; Munhoz et al, 2005; Rothfeld, 1995; Shulze & Stephan, 1987; Toichi et al., 2001; Wenzel, Schnider, Wimmer, Steinhoff, Moraru, & Auff, 1998) perfectionist tendencies (Jabusch & Altenmuller, 2004; Jabusch et al., 2004) and self-conscious attributes (cf., Grattan et al., 2001). Similarly, research in the sporting domain has suggested that golfers who experience the 'yips' present obsessional characteristics (McDaniel et al., 1989; Sachdev, 1992). Bawden and Maynard (2001) found that cricket bowlers with the 'yips' all cited high levels of self-consciousness as a personality characteristic. Given the similarities, which appear, a more extensive review of the research studies will follow.

A recent study (Broocks et al., 1998) looked at the prevalence of obsessive-compulsive symptoms in patients with blepharospasm (i.e., eyelid focal dystonia) compared to those with HFS. Twenty-nine patients with a diagnosis of either of the two syndromes were asked if they would participate. The patients were asked to complete the Structured Clinical Interview for DSM-III-R (SCID). In addition to this they were then asked to complete two rating scales: the SCL-90-R (Derogatis, 1977) and the Hamburg Obsession/Compulsion Inventory – Short Form (Klepsch, Zaworka, Hand, Lünenschloss & Jauernig, 1991). Interestingly, patients with blepharospasm had significantly more obsessive-compulsive symptoms than did patients suffering from HFS. It was indicated in section 2.1.1 that individuals with the 'yips' displayed higher levels of obsessional thinking (McDaniel et al., 1989; Sachdev, 1992). Given the similarities between the 'yips' and focal dystonia, it would be wise to investigate

whether obsessional thinking is a personality characteristic across sports skills affected by the 'yips'. This would certainly help to add conceptual clarity to the term described as the 'yips'. If the 'yips' is the same problem across sports, then one might expect similar personality characteristics to emerge.

The findings of Broocks et al. (1998) were in contrast to a recent study conducted by Munhoz et al. (2005) who reported no differences between matched groups and patients with blepharospasm and HFS. It was suggested that the DSM-IV criteria might have a lower sensibility for screening of isolated symptoms, which didn't fulfil the minimum list of criteria used in the study. Similar studies have frequently found obsessive-compulsive symptoms among blepharospasm patients, which suggest this, may have been the case (Bihari et al., 1992; Schulze & Stephan, 1987). If the 'yips' were a form of focal dystonia, then one would expect to find obsessional characteristics across any sport groups examined. An example of this type of obsessional thinking is a former golfer, Doug Sanders, who went on to develop the 'yips' after missing a putt to win the 1970 British Open. Thirty-three years after that incident, Sanders recalls (http://www.golfdigest.com/features/index.ssf?/features/gd200308myshot.html, visited April 2005):

> "I missed a 30 inch putt on the last green that would have won the 1970 British Open. It's all anybody wants to talk about. I won 20 times on the PGA Tour, and if you gave me one birdie, four pars and a bogey wherever I could put them, I'd have five majors. But it's the putt everybody remembers. What can I say? It's what I remember most, too!"

Obsessive-compulsive characteristics are prevalent in those who experience writer's cramp (Bindman &Tibbetts, 1977; Toichi et al., 2001). Bindman and Tibbetts (1977) described 10 patients with writer's cramp, nine of whom had obsessional personalities. A recent study examined 12 patients with writer's cramp, 12 patients in a disease (i.e., patients with writing impairment due to peripheral nerve damage) control group, and 12 normal controls. They reported significant differences between writer's cramp control group and both control groups. However, no differences emerged between the two control groups. One would expect that if the 'yips' were a common problem across activities, then obsessional personalities would be prevalent, which may indicate someone who is more susceptible to developing the problem.

Jabusch et al. (2004) and Jabusch and Altenmuller (2004) extended the research further to suggest that other personality variables are present in musicians with focal dystonia. Their contention was based upon clinical observations that perfectionism and anxieties are predominant in musicians' dystonia and that these features were already present before its onset. Indeed, their results confirmed that dystonic musicians showed higher levels of perfectionism than controls. The main problem was the measure used to investigate perfectionism was not a psychometrically validated tool. However, these findings still have a certain degree of merit considering the wealth of evidence in clinical psychology literature which suggests perfectionism and obsessionalism are the same thing (Adams, 1973; Honjo, Hirano, & Murase, 1989; Lo, 1967; Rasmussen & Tsuang, 1986; Rasmussen & Eisen, 1989). Indeed perfectionism has been closely tied to Obsessive-Compulsive Disorder (OCD) since the writings of Janet in the early 1900's (cited in Pitman, 1987). If the 'yips' are a form of movement disorder one might expect those who suffer from the affliction to be higher in levels of perfectionism than those who are not affected by the syndrome, considering the link which has been proposed. What is not clearly understood at present is the exact

aetiology of the problem. The following section presents research which examines potential factors involved in the aetiology of the movement disorders.

2.2.2 FOCAL DYSTONIA: AETIOLOGY OF THE PROBLEM

There is much conjecture to the aetiology of focal dystonia. This has therefore clouded the issue of whether the 'yips' in sport are anxiety or neurologically based. As a result, a number of explanations have been proposed which have failed to address the issue of its origin adequately. Individuals suffering from the affliction have sought professional advice from medical practitioners in an attempt to gain relief from their symptoms, often without much success (Lim et al, 2001). Research has illustrated that the basal ganglia have an important role to play in the formation and execution of motor programmes (Houk, 1995). It has been suggested that focal dystonia could be caused by an abnormality in the dopaminergic system in the basal ganglia, but neuropathologic studies have been inconclusive (Lim et al., 2001). Secondly, dystonias may be caused by medications such as antidopaminergic agents (Adler, 2000), metabolic diseases, head injury or stroke. A recent review of the dystonia literature speculated that there could be a close link between dystonia and emotion (Lim et al., 2001). Specifically, it was thought that the basal ganglia and frontostriatal system may serve as an interface between motor and emotional memories, as it integrates limbic, proprioceptive, and sensorimotor inputs to create emotionally and functionally appropriate voluntary movements. Damage to the basal ganglia has resulted in a wide range of dysfunctions in both emotions and motor behaviour (Lim et al., 2001). Psychological explanations for the disorder have been related to anxiety, hysteria, personality disorders, psychodynamic conflict, simple phobia and obsessionality. More recent evidence would tend to suggest that psychologically significant life events play a role in the onset of varying forms of focal dystonia (cf.,

Baker & Humblestone, 2005; Crimlisk, Bhatia, Cope; David, Marsden & Ron, 1998; Kirsch & Wink, 2004; Lees, 2002; Schmidt et al., 1994; Schweinfurth et al., 2002; Thomas, Vuong, & Jankovic, 2006). Considering the lack of a consistently viable explanation from the medical literature, a brief overview of these research studies, which explore psychological phenomena, will now be sought.

The occurrence of unexplained medical symptoms is far from new and has been identified way back in history. Hippocrates was the first to use the term Hysteria, which for hundreds of years and until recently has been used to describe what, is now more acceptably described under the headings dissociative, conversion or psychogenic disorders (cf., Baker & Humblestone, 2005).

The theory of dissociation to explain the process of hysteria was first proposed in 1889. Pierre Janet and Charcot developed the theory that psychologically weak individuals fail to process all the sensory stimuli during a trauma due to the narrowing of attention to cues (Baker & Humblestone, 2005). This consequently leads to the unlinking or dissociation of the physical experiences and the memory of the event. Environmental triggers can then lead to the re-experiencing of the physical sensations but the memory of the event remains unrecalled (Brown, 2004). This would certainly explain some of the anecdotal and empirical evidence for the physical sensations of the 'yips' in golf. Smith et al. (2000; 2003) reported that the 'yips' were episodic, and more frequently occurred at putts between 2 and 5 foot. Longer putts failed to initiate the 'yips' response. One explanation might be that as the performer gets nearer the hole, the expectation of success increases. Another possible explanation is that environmental triggers are only prevalent during putts of these distances. Of greater interest is the fact that a small number of golf affected 'yippers' tend to suffer from putting 'yips', to chipping 'yips' or vice versa. Dissociation theory may suggest that

something similar from one of the two environments may provide the catalyst for the 'yips' to spread from one situation to the other.

Conversion disorder developed on from dissociation and was based upon Freud's hypothesis that emotion not expressed or discharged would lead to somatic complaints. The theory is described by the process of converting psychological pain to physical symptoms, brought about by a discharge of emotional pain (Baker & Humblestone, 2005). In the event of a trauma the individual would suppress emotional expression; the suppressed emotion would then be manifested as a physical symptom to which the individual gained relief from the psychological pain. If the 'yips' or focal dystonias can be explained using conversion theory, then one would expect significant life events to occur prior to any physical disturbances, which occur in skill execution.

A recent investigation examined two children who were suffering from unexplained neurological disorders (Kirsch & Wink, 2004) similar to the 'yips'. The reason for presenting these cases is the fact that to a certain degree, the 'yips', indeed focal dystonia are not fully understood. The first case described a 12-year-old male who had a sudden onset of tremor in his right leg and both hands on the morning after an emergency room visit for an asthma attack. The right leg was predominantly involved and the right hand and jaw were variably involved. Over the three days before hospital admission, he developed a periodic gait abnormality, during which his right knee would 'lock up', and intermittent right hand 'cramping' into a claw like posture (Kirsch & Wink, 2004). Whilst neurological examination failed to establish the cause of the problem, further questioning revealed some clear stressors were present prior to the onset. The parents were having marital problems, and the patient's illness caused them to spend more time together. In addition, the father was a coach who was placing pressure on the patient to play competitive sports.

The second case described a 16-year-old female who developed sudden onset of whole body jerks without preceding illness. Similar to the previous case, it became clear that she found the upcoming start of school in combination with a new job and the pressures of competitive swimming to be very stressful. With her parents in the consultation room, she wondered out loud that she might stop swimming competitively to which her parents agreed. Within three hours the physical symptoms disappeared and did not return.

A recent study used telephone interviews, retrospective charts reviews and other methods to assess the relationship between underlying psychiatric factors and the long-term prognosis of psychogenically based movement disorders (Thomas et al., 2006). Out of a sample of 227, 33.5% (n = 76) experienced a personal life stress which preceded the development of the problem. In addition, 28.6% (n = 65) experienced some sort of trauma. Similarly, Schweinfurth et al. (2002) indicated that 21% of individuals experienced a major life stress prior to the onset of spasmodic dysphonia, a disorder very similar to those experienced in occupational tasks. Schmidt et al. (1994) indicated the presence of profound emotional events prior to the onset of focal dystonia in two women. Clearly there is a growing appreciation within the movement disorder literature that psychological factors may be present prior to the onset of these movement disorders. Indeed, these events may tie in with certain personality characteristics displayed by those with focal dystonia. It is therefore important to distinguish firstly whether the 'yips' are indeed a form of movement disorder. Secondly, it is important to distinguish whether its aetiology is similar to the research which is beginning to appear in the movement disorder literature. If the same is true for those affected by the 'yips', then there is the potential to design appropriate interventions, which can be readily applied to all sports tasks, which are afflicted by

the problem. Based upon the earlier classification, it would be expected these would be fine, discrete, closed, and self-paced skills (cf., Honeybourne et al., 1996).

2.2.3 FOCAL DYSTONIA: SECTION SUMMARY

The research presented in this section has highlighted a number of areas which need careful consideration. Firstly, similar to the findings in the golf 'yips' research, it would appear that focal dystonia involves physical disruptions in skill execution. These disruptions are characterised by involuntary movements and freezing which occur in skill execution. Specifically, these disturbances occur in the muscles which are required to perform the skill successfully. Based upon the anecdotal evidence which suggests the 'yips' occur in sports other than golf, it would seem appropriate to examine whether these too are affected by physical disturbances, and how and if, these disturbances manifest themselves.

Of particular interest to sport psychologists is the fact that certain personality characteristics may possibly make one more prone to the development of the 'yips'. Evidence would suggest that individuals who experience focal dystonia have obsessional, perfectionist and self-conscious personality types. It could be that individuals who experience the 'yips' are more prone to developing the problem through these personality characteristics. However, a more thorough understanding of these personality variables is required before specific hypotheses can be generated. The evidence indicates that significant life events may take place prior to the development of certain movement disorders. Given the lack of understanding regarding the aetiology of the 'yips', it would seem logical to explore whether these events are causal factors in the 'yips' experience.

2.3 SUMMARY AND AIMS OF RESEARCH

The preceding review of literature has shown that there is still a great deal of understanding to be sought regarding the 'yips' in sport. Many theoretical perspectives have been described and discussed that could be associated with the breakdown of automatic skills, yet few connections have been made between these phenomena and the 'yips' in the academic literature. Certainly, anecdotal evidence would suggest that the 'yips' are more prevalent than empirical research suggests. Due to a lack of depth in the research, problems have arisen with the definition of the problem, which have ranged from a focal dystonia to choking. The first aim of this research was to establish sport skills affected by the 'yips' and to see if other sport skills than golf putting are affected by the problem. It is important to distinguish whether these skills are affected by the 'yips' or whether they have been incorrectly diagnosed, as they could be just an extreme form of choking, a performance phobia or LMS. By examining the physical and psychological mechanisms across sport type, it should emerge whether the 'yips' are the same problem independent of sport type. A further aim of this investigation was to explore preceding factors, which may underpin the 'yips'. Establishing whether the 'yips' are physically or psychologically based is of prime importance as intervention strategies can then be designed specific to the central cause of the problem. A final aim of this investigation is to establish a potential intervention strategy to treat the problem. Thus, the following specific research aims were generated:

1) To identify sports skills affected by the 'yips' and the physical and psychological mechanisms involved in the experience.

2) To explore factors which occur prior to the first experience of the 'yips', at the initial experience of the problem and on subsequent occasions that the affliction occurs.

3) To examine the relationship between certain personality traits and 'yips' affected sports people versus non-affected.

4) To identify a psychological intervention strategy which could potentially be used to counter the 'yips'.

CHAPTER 3

3.0 STUDY 1. AN EXPLORATORY INVESTIGATION OF THE 'YIPS' ACROSS AND WITHIN SPORT

3.1. INTRODUCTION

Empirical research suggests that the 'yips' is a performance problem predominantly experienced in the sport of golf (McDaniel et al., 1989; Sachdev, 1992; Smith et al., 2000, 2003; Adler et al., 2005). Golfers experience involuntary muscle contractions in the agonist and antagonist muscles of the putting stroke (Smith et al., 2000, 2003; Adler et al., 2005). Furthermore, they experience choking symptoms (Smith et al., 2000, 2003). Sachdev (1992) tentatively indicated that cricket, tennis, table tennis, and snooker were also affected by the problem. This was based on a self-report of activities affected which were similar to the 'yips', rather than a full investigation of the symptoms experienced. The current investigation looked to draw on previous research of the 'yips' and examine whether sports other than golf are prone to the 'yips'.

An advantage of the methods utilised by McDaniel et al. (1989), Sachdev (1992) and Smith et al. (2000) (see section 2.1.2) was their exploratory nature. However, they failed to investigate other sports skills, which also maybe affected. Furthermore, the questionnaires were purely quantitative and failed to address individual perceptions. A combination of quantitative and qualitative procedures would enable researchers to simultaneously answer confirmatory and exploratory questions (Teddlie & Tashakkori, 2003).

Therefore the aim of this investigation was to explore sports skills which maybe affected by the 'yips' and confirm these findings based on previous research conducted on the 'yips' in golf and cricket. It was proposed that the 'yips' were more prevalent than empirical research would imply. It was hypothesised that the 'yips' would

manifest in physical disruptions specific to skill execution. For this reason, it was expected that psychological symptoms would be similar across the various sport skills identified. It was further hypothesised that participants would suggest the 'yips' have a physical cause. Finally, based on Bawden and Maynard's (2001) findings, it was expected that participants who reported experiencing the 'yips' would display self-conscious characteristics.

3.2. METHODS

Preparatory stage

To identify sports affected by the 'yips', a survey of Accredited British Association of Sport and Exercise Sciences (BASES) sport psychologists was carried out (Appendix 2). Out of 40 emails posted, 8 sport psychologists responded who had worked with individuals who suffered from the 'yips'. Activities affected included golf-putting and chipping, the darts throw, cricket bowling, the cuing action in snooker, the javelin throw, and the tennis serve. It emerged there was a long-term breakdown in skill execution, when previously individuals had been able to perform the skill. Based on the questionnaire utilised by Smith et al. (2000), an on-line survey was designed (Appendix 3). The design team consisted of the principal investigator, a team of sport scientists, and 'yips' affected individuals from the sports identified. The questionnaire combined quantitative and qualitative aspects. To ensure face validity, a pilot study was carried out to refine the survey design utilising individuals who were understood to experience the 'yips'.

The adapted survey was posted at the web address, www.yipsinsport.com so that participants could self-select themselves into the survey. Individuals were required to have experienced a severe breakdown in a skill which they could previously perform

with ease. Before proceeding to the survey, participants were directed to read an information sheet regarding the 'yips' (Appendix 3). Thirty-five participants didn't comply with the criteria and were removed from the analysis. It was deemed their experience was down to poor performance rather than a 'yips' experience. The survey obtained; sport-specific demographic data; physical and psychological symptoms experienced; and the participant's perceptions of the aetiology of the problem (i.e., are the 'yips' perceived to be a psychological problem followed by physical symptoms or vice versa) (appendix 4). Further, open-ended responses were also used to gain a greater understanding of the first experience of the 'yips' and to provide a general description of what happens during the 'yips' experience. The data were used to enhance the researcher's awareness of the physical and psychological symptoms reported by sufferers.

Appropriate statements from the reinvestment scale (Appendix 8; Masters, Polman, & Hammond, 1993) were integrated into the survey. The purpose was not to measure reinvestment per se, but to provide an indication as to whether individuals felt self-conscious during the 'yips' experience. A total of five statements (items 5, 11, 13, 15 and 18) were included in the initial pilot based upon a discussion between the two principal investigators. Two items were omitted (i.e., 15 and 18), as participants declared these statements were not relevant to them. Based on feedback, the remaining statements were modified to ensure face validity. These items were adapted to: 'I got worked up thinking what had happened', 'I was self conscious about the way I performed', and 'I was alert to changes in my mood'. Two additional statements, 'I wasn't able to focus on the task at hand' and 'I felt intense anxiety when I performed' were included based on feedback from the pilot group. A likert scale (1 = not at all, 7 = very much so) was used to measure the responses.

Participants

With institutional ethics approval, a total of 228 self-selected 'yips' participants took part in the survey, from golf (n = 110; $\bar{x}$ age = 44 ± 13.22), darts (n = 63; $\bar{x}$ age = 37 ± 9.33), cricket (n = 42; $\bar{x}$ age = 31 ± 10.8), tennis (n = 5), snooker (n = 2), badminton (n = 2), table tennis (n = 2), and squash (n = 2). These participants were obtained through advertisements on the BBC Sport Academy website (www.news.bbc.co.uk/sportacademy), Golf Monthly, Darts World and the Wisden Cricketer. Analysis was conducted on the three larger samples as the smaller samples were not representative of their populations.

Data Analysis

Descriptive statistics were produced in line with the aims of the paper. The responses to open-ended questions were analysed using InVivo (version 2.0). Due to the broad nature of the study, the analytical process was flexible, using inductive and deductive processes of reasoning so that categories and sub-categories could be modified and refined until satisfactory lists could be established and exhausted from all of the data (Tesch, 1990). A total of 1075 lines of text were produced for the general description of the 'yips' experience, and a further 1005 lines of text for the description of the first experience of the 'yips' (see appendix 4 for a sample of data from the survey). A deductive process was used to organise the data into major themes (i.e., physical and psychological symptoms experienced, and the first experience of the yips). An inductive process was used to create raw data themes and sub-categories of these major themes. The second author read and reread the text produced and validated the themes identified. This author has been involved in previous qualitative research in the 'yips' (Bawden & Maynard, 2001).

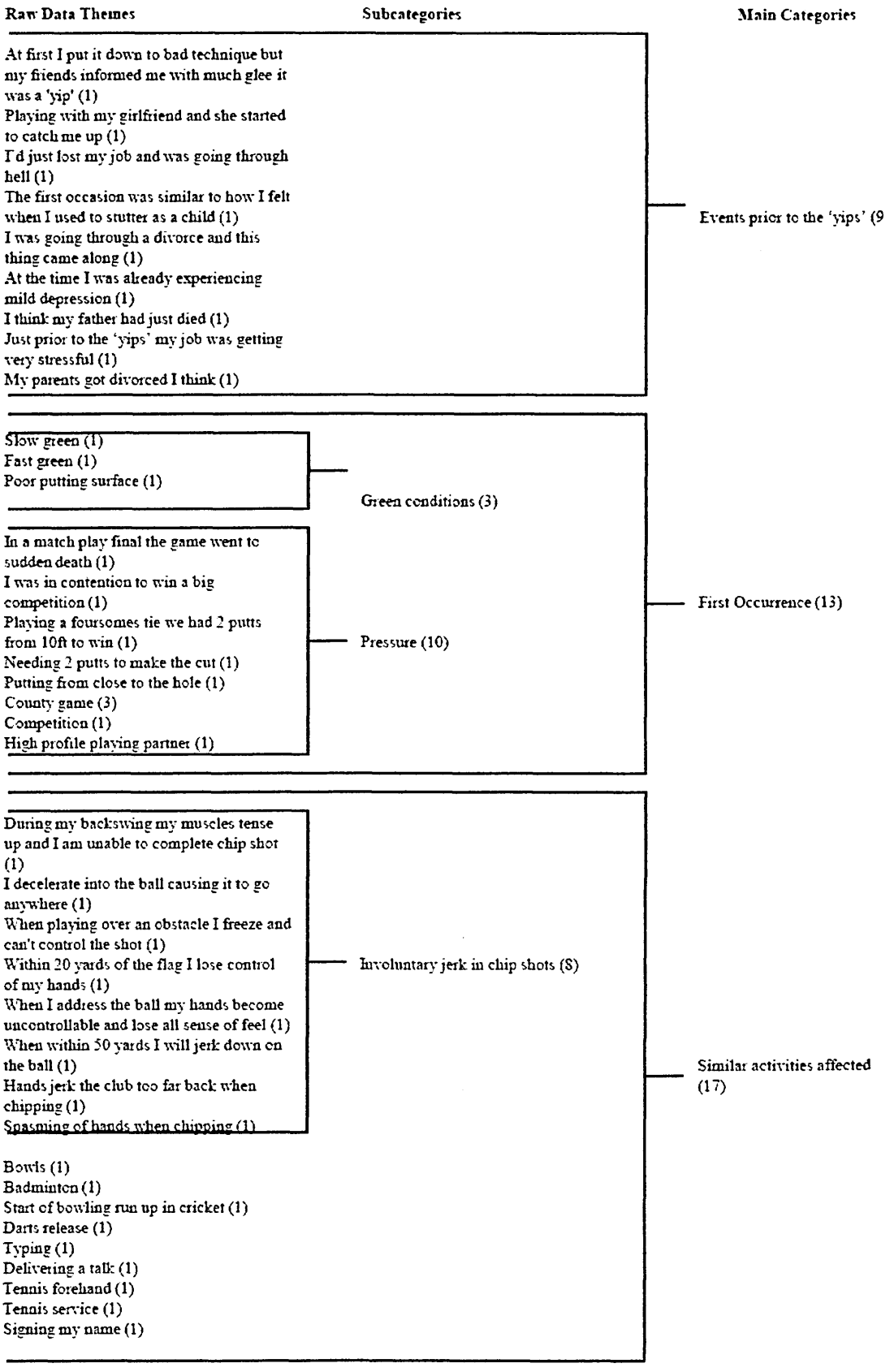
Demographic data

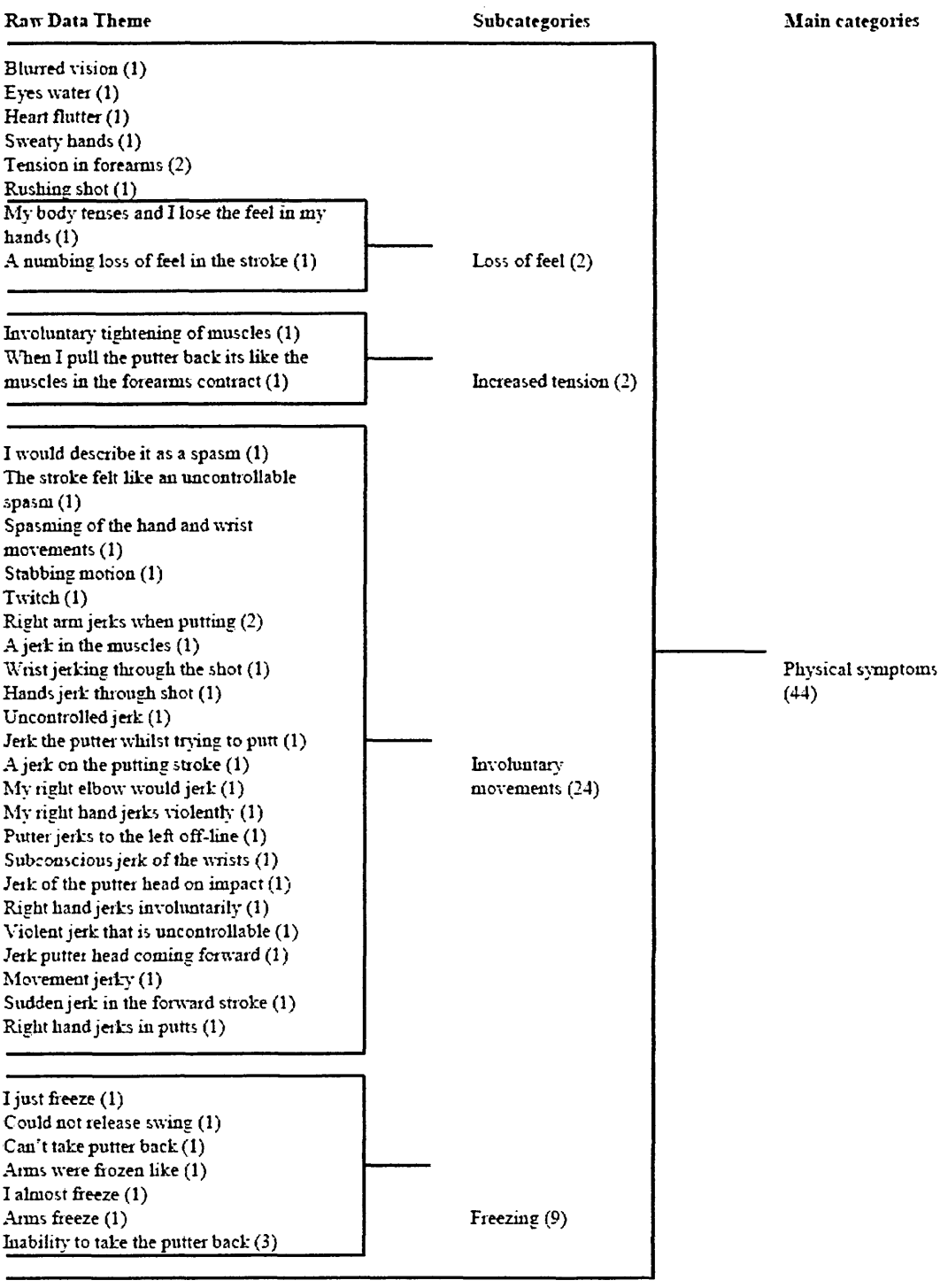
The predominant tasks affected by the 'yips' were the putting stroke in golf and the release mechanism in the darts throw and cricket bowling. Participants had experienced the 'yips' on average for 5.7 ± 6.91 years (Golf, 6.88 ± 7.83; Darts, 3.92 ± 5.18; Cricket, 6.31 ± 7.71). The average age of those affected was 44 ± 13.5 years (Golf, 43.7 ± 13; Darts, 58 ± 9; Cricket, 31 ± 10). From the sample collected, 91% of golfers, 83% of darts players and 60% of cricketers were still competing in their sport. Reasons cited for no longer playing included a lack of control and a lack of confidence.

Physical symptoms

Open-ended responses were used to support the quantitative data (Figures 3.1 – 3.3). A larger percentage of golfers (84%) and darts players (57%) experienced a jerk in the execution of the skill, in comparison to the 21% of cricket bowlers who also experienced the symptom. One golfer stated (Figure 3.1): 'I have a violent jerk that is uncontrollable. The stroke through the ball is completely out of control'. Another golfer stated (Figure 3.1): 'The actual motion which occurs when I 'yip' is a sub-conscious jerk of the wrists, which is a split second before impact with the ball. This either opens or closes the clubface, therefore sending the ball off on a different line than intended'. A larger percentage of darts players (48%) experienced freezing in the completion of the skill in comparison with golf (32%) and cricket (28%). Freezing would appear to describe the process where the muscles involuntarily lock causing a disruption in skill execution. One darts players reported (Figure 3.2): 'I could bring my arm back to throw the dart, begin the throw but then just freeze, my hand and arm

Figure 3.1: Golf open-ended responses




Raw Data Theme
Subcategories
Main categories
Blurred vision (1)
Eyes water (1)
Heart flutter (1)
Sweaty hands (1)
Tension in forearms (2)
Rushing shot (1)
My body tenses and I lose the feel in my hands (1)
A numbing loss of feel in the stroke (1)
Loss of feel (2)
Involuntary tightening of muscles (1)
When I pull the putter back its like the muscles in the forearms contract (1)
Increased tension (2)
I would describe it as a spasm (1)
The stroke felt like an uncontrollable spasm (1)
Spasming of the hand and wrist movements (1)
Stabbing motion (1)
Twitch (1)
Right arm jerks when putting (2)
A jerk in the muscles (1)
Wrist jerking through the shot (1)
Hands jerk through shot (1)
Uncontrolled jerk (1)
Jerk the putter whilst trying to putt (1)
A jerk on the putting stroke (1)
My right elbow would jerk (1)
My right hand jerks violently (1)
Putter jerks to the left off-line (1)
Subconscious jerk of the wrists (1)
Jerk of the putter head on impact (1)
Right hand jerks involuntarily (1)
Violent jerk that is uncontrollable (1)
Jerk putter head coming forward (1)
Movement jerky (1)
Sudden jerk in the forward stroke (1)
Right hand jerks in putts (1)
Involuntary movements (24)
I just freeze (1)
Could not release swing (1)
Can't take putter back (1)
Arms were frozen like (1)
I almost freeze (1)
Arms freeze (1)
Inability to take the putter back (3)
Freezing (9)
Physical symptoms (44)

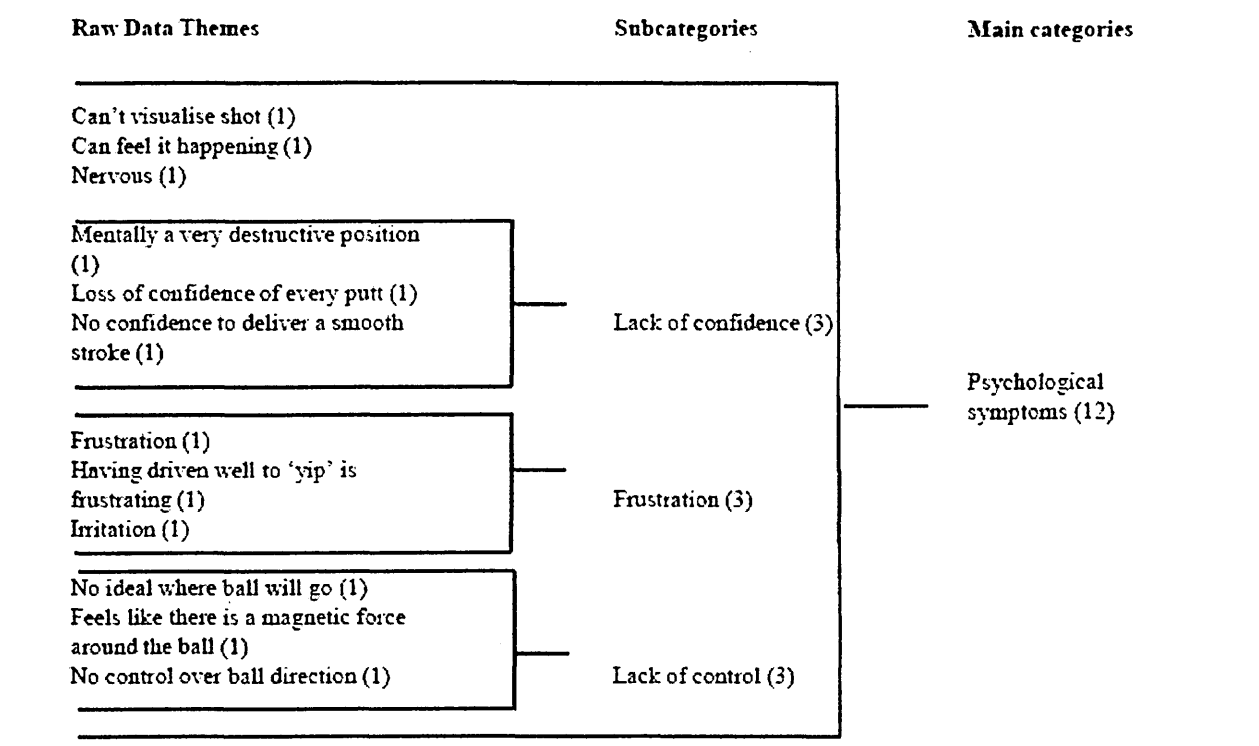
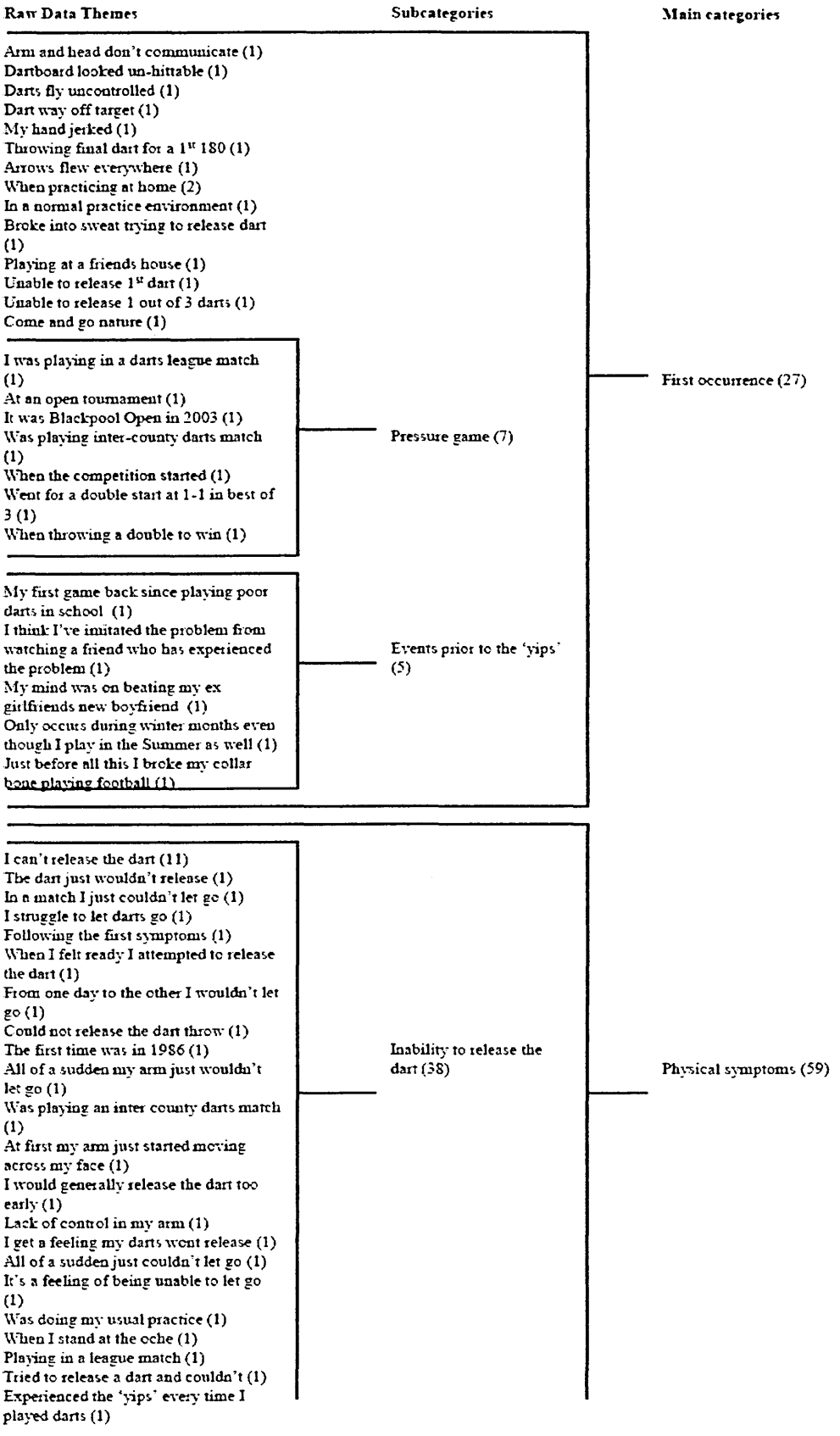
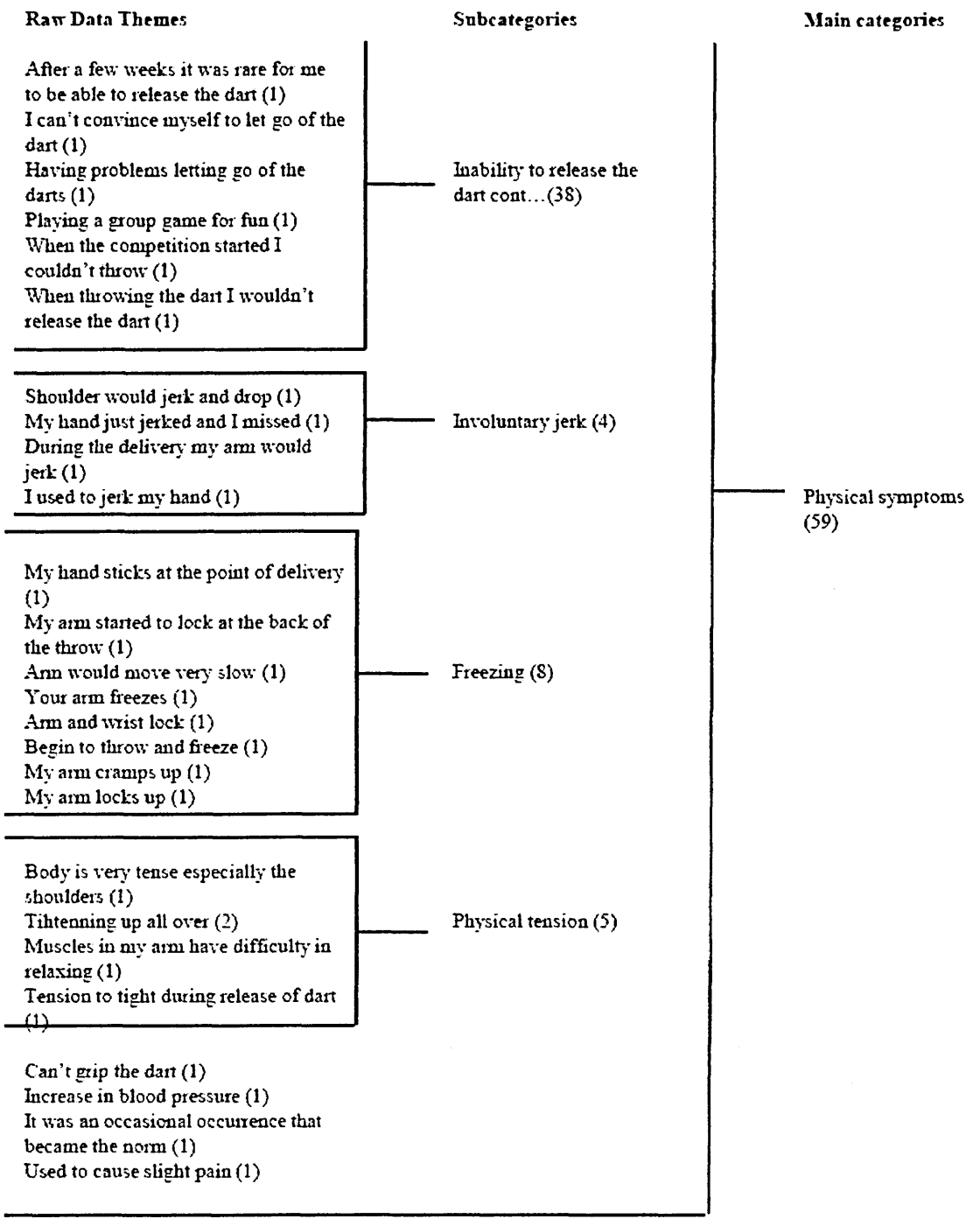

Raw Data Themes
Subcategories
Main categories
Can't visualise shot (1)
Can feel it happening (1)
Nervous (1)
Mentally a very destructive position (1)
Loss of confidence of every putt (1)
No confidence to deliver a smooth stroke (1)
Lack of confidence (3)
Frustration (1)
Having driven well to 'yip' is frustrating (1)
Irritation (1)
Frustration (3)
No ideal where ball will go (1)
Feels like there is a magnetic force around the ball (1)
No control over ball direction (1)
Lack of control (3)
Psychological symptoms (12)

Figure 3.2 Darts open-ended responses




Raw Data Themes
Subcategories
Main categories
After a few weeks it was rare for me to be able to release the dart (1)
I can't convince myself to let go of the dart (1)
Having problems letting go of the darts (1)
Playing a group game for fun (1)
When the competition started I couldn't throw (1)
When throwing the dart I wouldn't release the dart (1)
Inability to release the dart cont...(38)
Shoulder would jerk and drop (1)
My hand just jerked and I missed (1)
During the delivery my arm would jerk (1)
I used to jerk my hand (1)
Involuntary jerk (4)
My hand sticks at the point of delivery (1)
My arm started to lock at the back of the throw (1)
Arm would move very slow (1)
Your arm freezes (1)
Arm and wrist lock (1)
Begin to throw and freeze (1)
My arm cramps up (1)
My arm locks up (1)
Freezing (8)
Body is very tense especially the shoulders (1)
Tihtenning up all over (2)
Muscles in my arm have difficulty in relaxing (1)
Tension to tight during release of dart (1)
Physical tension (5)
Can't grip the dart (1)
Increase in blood pressure (1)
It was an occasional occurrence that became the norm (1)
Used to cause slight pain (1)
Physical symptoms (59)

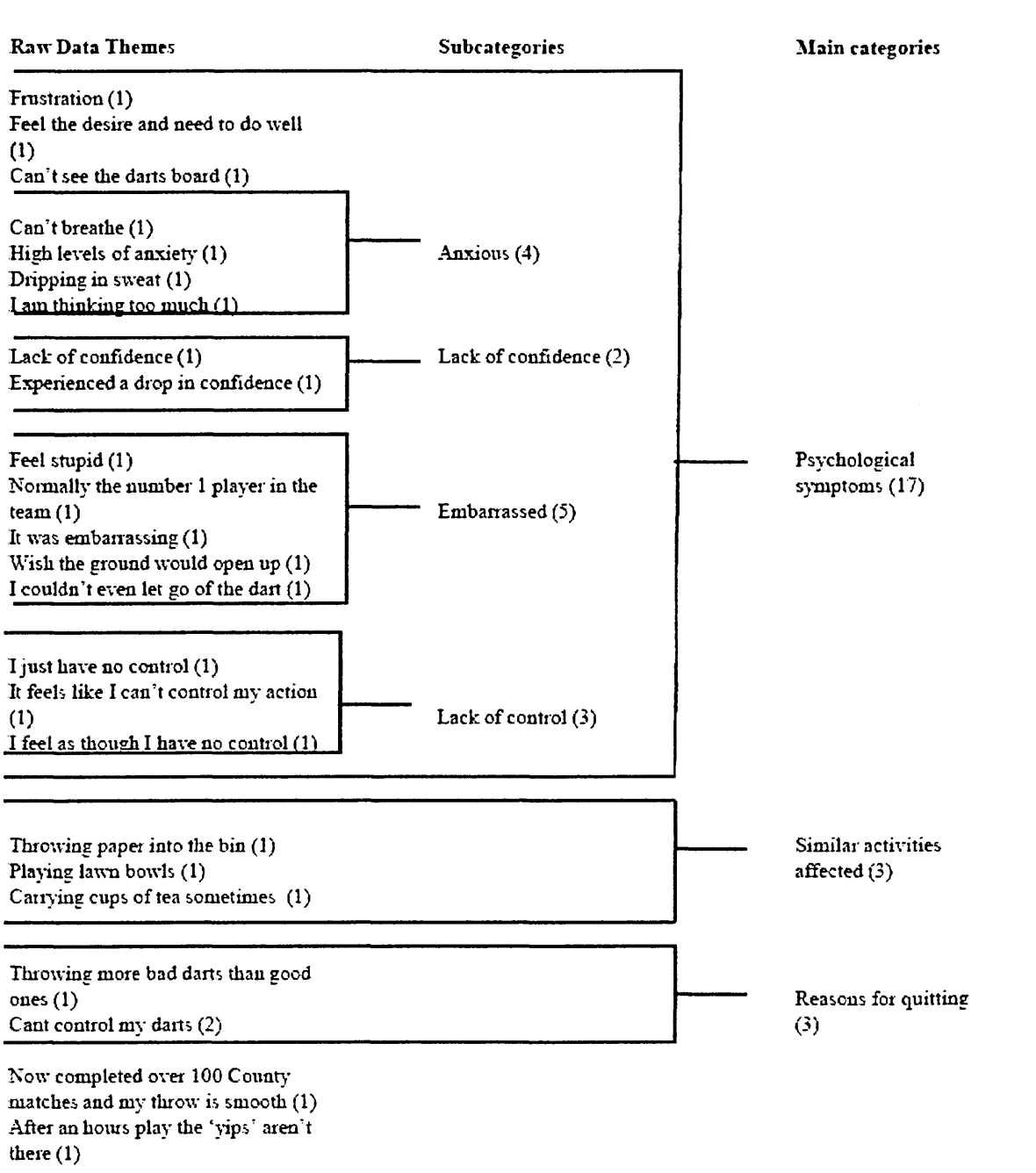
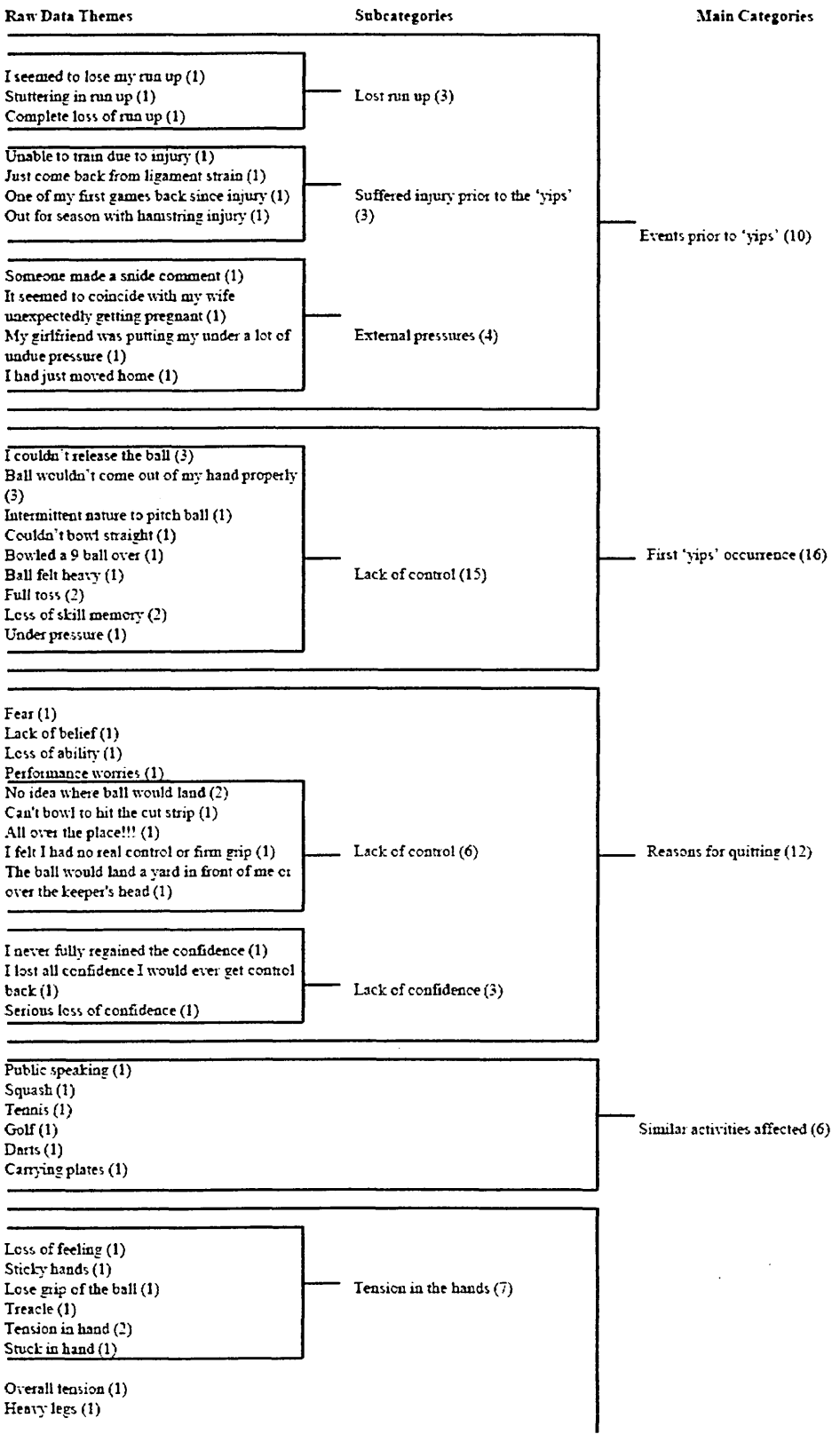
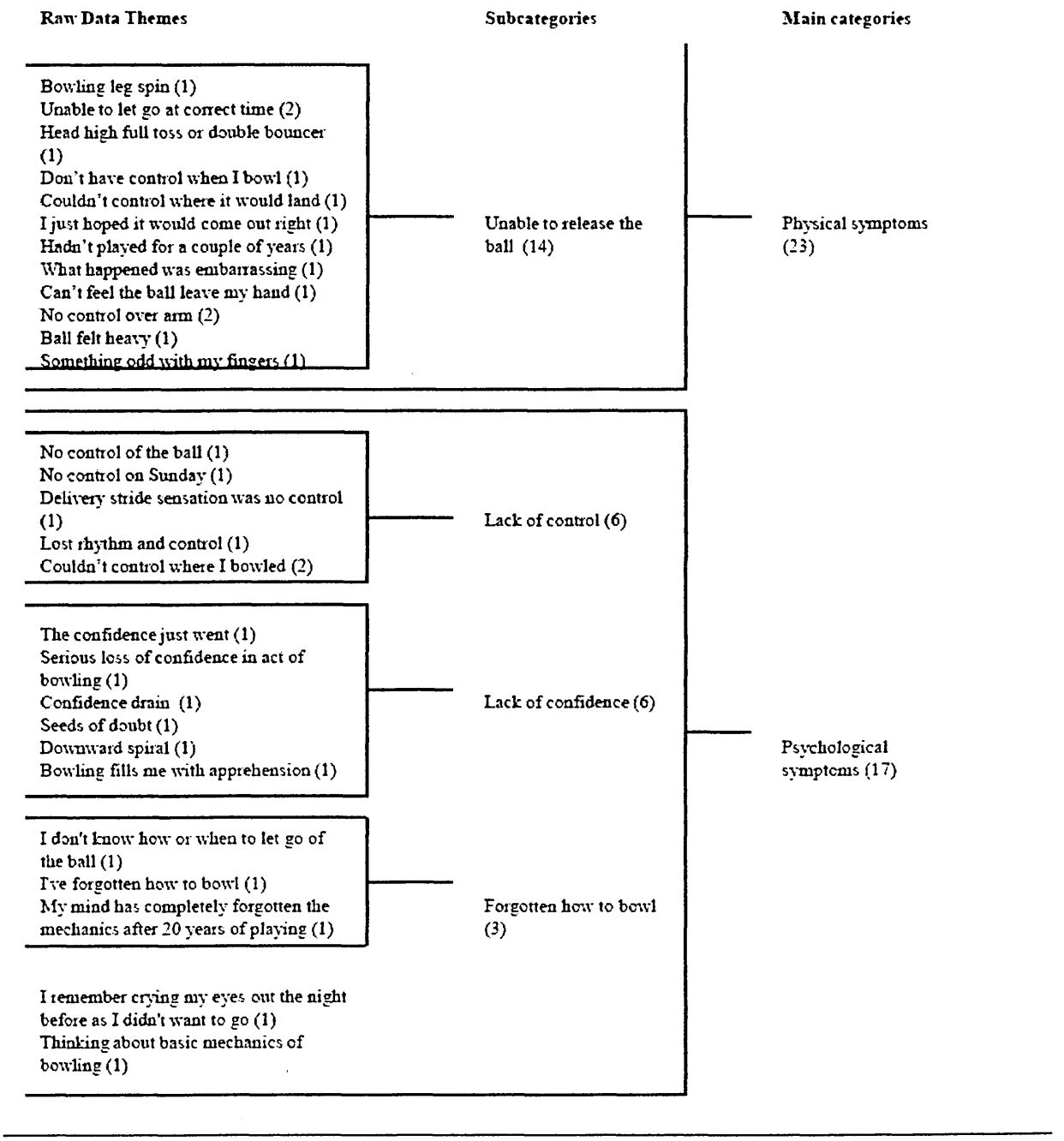

Raw Data Themes
Subcategories
Main categories
Frustration (1)
Feel the desire and need to do well (1)
Can't see the darts board (1)
Can't breathe (1)
High levels of anxiety (1)
Dripping in sweat (1)
I am thinking too much (1)
Anxious (4)
Lack of confidence (1)
Experienced a drop in confidence (1)
Lack of confidence (2)
Feel stupid (1)
Normally the number 1 player in the team (1)
It was embarrassing (1)
Wish the ground would open up (1)
I couldn't even let go of the dart (1)
Embarrassed (5)
I just have no control (1)
It feels like I can't control my action (1)
I feel as though I have no control (1)
Lack of control (3)
Psychological symptoms (17)
Throwing paper into the bin (1)
Playing lawn bowls (1)
Carrying cups of tea sometimes (1)
Similar activities affected (3)
Throwing more bad darts than good ones (1)
Cant control my darts (2)
Reasons for quitting (3)
Now completed over 100 County matches and my throw is smooth (1)
After an hours play the 'yips' aren't there (1)

Figure 3.3: Cricket open-ended responses:




Raw Data Themes
Subcategories
Main categories
Bowling leg spin (1)
Unable to let go at correct time (2)
Head high full toss or double bouncer (1)
Don't have control when I bowl (1)
Couldn't control where it would land (1)
I just hoped it would come out right (1)
Hadn't played for a couple of years (1)
What happened was embarrassing (1)
Can't feel the ball leave my hand (1)
No control over arm (2)
Ball felt heavy (1)
Something odd with my fingers (1)
Unable to release the ball (14)
Physical symptoms (23)
No control of the ball (1)
No control on Sunday (1)
Delivery stride sensation was no control (1)
Lost rhythm and control (1)
Couldn't control where I bowled (2)
Lack of control (6)
The confidence just went (1)
Serious loss of confidence in act of bowling (1)
Confidence drain (1)
Seeds of doubt (1)
Downward spiral (1)
Bowling fills me with apprehension (1)
Lack of confidence (6)
I don't know how or when to let go of the ball (1)
I've forgotten how to bowl (1)
My mind has completely forgotten the mechanics after 20 years of playing (1)
Forgotten how to bowl (3)
I remember crying my eyes out the night before as I didn't want to go (1)
Thinking about basic mechanics of bowling (1)
Psychological symptoms (17)

just totally lock up'. Another darts player stated (Figure 3.2): 'I cannot let the arm flow as normal. There is like a pause as I'm trying to let go of the dart'. Likewise, one of the cricketers stated (Figure 3.3): 'When I am about to bowl, my hand will involuntarily grip the ball too tightly and I can't decide when to let go of the ball'. Some participants reported increased physical tension of the muscles involved in skill execution (Golf: 61%; Darts, 63%; Cricket, 67%). It is possible that this caused the sensation of being unable to release the dart or the cricket ball to the desired area. One of the cricketers stated (Figure 3.3): 'When I am bowling I have difficulty releasing the ball such that either a slow-medium head high full toss occurs or the ball bounces 2-3 times'. Likewise, a darts player reported (Figure 3.2): 'Playing in a league match, I was at the oche throwing for a double to win, when I realised I had a hard job to let go of the dart'.

Psychological symptoms

There were a number of similarities in psychological symptoms experienced across the three sporting activities. A high percentage of participants experienced fear of the environment (Golf, 69%; Darts, 49%, Cricket, 60%), personal embarrassment (Golf, 61%; Darts, 78%; Cricket, 61%), external concerns (Golf, 45%; Darts, 62%, Cricket, 74%), a perceived inability to perform the skill (Golf, 90%, Darts, 71%; Cricket, 66%) and feeling out of control in the environment (Golf, 63%; Darts, 65%; Cricket, 67%). Qualitative data adds understanding to the latter symptom. For instance, a golfer stated (Figure 3.1): 'It feels like there is a magnetic force around the ball preventing a proper contact which can go left/right/short or straight past the hole'. Another golfer stated (Figure 3.1): 'I have no idea where the ball is going to go. I will duff putts, send them yards past or sideways to the hole. I will even double hit the ball. It is a terrible feeling of having no control'. Similarly, a darts player stated (Figure 3.2): 'I feel as

though I have no control, in fact, no idea where the dart will go. I will be stood there and I will literally have no idea what is about to unfold'. A common sensation reported by cricket bowlers was summed up by this quote (Figure 3.3): 'I was running in to bowl and simply could not put the ball into the area I wanted it to go. No matter what I did the ball would not leave my hand how I wanted'. Similarly, another cricketer stated (Figure 3.3): At times, I run in to bowl and cannot feel the ball leave my hand. I can't put my finger on it but I just don't feel in control'. In addition to the symptoms reported, a small proportion of participants across sport type reported a lack of confidence in their ability to carry out the skill. One of the golfers stated (Figure 3.1): 'It is a mentally, very destructive position to be in as my confidence has been completely drained'. One of the darts players reported (Figure 3.2): 'I have experienced a dramatic drop in confidence. I have thought about it, I have worried about it, and I just can't figure out what is wrong'. Likewise, a cricketer stated (Figure 3.3): 'I can feel my confidence draining as I am walking into bowl'.

All participants reported above average (>3.5) scores for items included from the reinvestment scale (Masters et al., 1993) and the additional reflections included from the pilot study. The most severe scores were recorded for participants who became: agitated thinking about what had happened (Golf, 4.9 ± 1.8; Darts 5.5 ± 1.7; Cricket, 5.5 ± 1.4): self conscious about the way they performed (Golf, 5.2 ± 1.7; Darts 6.0 ± 1.3; Cricket, 6.4 ± 1.0) and felt intense anxiety when performing (Golf, 5.0 ± 1.9; Darts, 5.2 ± 1.9; Cricket, 5.5 ± 1.6).

Perceptions of the aetiology and exploration of the first experience

Smith et al. (2003) explored individual definitions of the 'yips' to try and understand more about the aetiology of the problem. Rather than exploring definitions of the 'yips' within this study, individuals' perceptions as to the cause of the problem were

explored, to add understanding to the physical and psychological symptoms described earlier in this section. The 'yips' were perceived to be a psychological problem followed by a physical disturbance for 59% of the golfers, 48% of the darts players, and 40% of the cricketers. In comparison, 36% of the cricketers, 25% of the darts players and 24% of the golfers perceived the symptoms to be physical followed by a psychological response. The remaining participants were not sure of the cause (Darts, 27%; Cricket, 24%; Golf, 17%).

A number of participants were able to recall the first occurrence of the 'yips' (Golf; 58%; Darts, 73%; Cricket; 80%). Both golf (67%) and darts (37%) players cited the 'yips' first occurred in pressure conditions. For instance, one of the golfers stated (Figure 3.1): 'I was playing with two professionals and an England player and my first putt from 10 feet missed the hole by 4 feet wide and 6 feet past and since then I have had the 'yips'.

It appeared there were contributing factors, which may have been present before the onset of the 'yips', which may provide insight into the perceptions of the aetiology (cf., Strauss and Corbin, 1990). These have been broadly labelled as 'events prior to the 'yips'' to encompass the wide range of data (e.g., death of parent, relationship breakdown, life transition, parents divorced, losing a job). One cricketer said (Figure 3.3): '...I didn't know some of the older players and some had been unpleasant to me in the past. I ran up to bowl and felt extremely nervous. I didn't want to let go of the ball. The ball would land at my toes or soar over the batsman's head'. One darts player related to relationship problems as they were throwing. This player reported (Figure 3.2): 'I had just split up with my girlfriend. I thought it was my mind wondering on her, or a curse from her. I would practise beating her new boyfriend at darts in my mind and it would make me throw worse.' One golfer got upset with his

playing partner. He stated (Figure 3.1): 'I got upset with a playing partner for one reason or another and began to miss short putts during the round of golf. It got to the point where I could not make a short putt and it progressively has gotten worse. Four cricket players (Figure 3.3) cited an 'injury prior to the 'yips', and three other cricketers cited, 'a loss of run up' as factors which occurred prior to the 'yips' experience.

3.4. DISCUSSION

Sachdev (1992) suggested that performance problems such as the 'yips' were evident across a variety of sport skills without actually systematically investigating the issue. This study established the pre-dominant sports skills affected by the 'yips' and the physical and psychological symptoms experienced by sufferers. In addition, a range of reflections from 'yippers' were explored to indicate whether future research needs to explore self-consciousness as a personality trait of 'yips' affected sufferers. Finally, the investigation elicited individuals' perceptions as to the possible cause of the problem.

The findings indicated that the 'yips' are prevalent across more sports than previous empirical research has suggested (McDaniel et al., 1989; Smith et al., 2000, 2003). The predominant tasks affected included putting in golf, and the release mechanism in darts and cricket bowling. The physical symptoms reported were specific to the task requirements. All participants reported increased physical tension of the muscles involved in the activity. Additionally, golf and darts players experienced involuntary movements and freezing in the execution of their respective skills. Darts players and cricket bowlers experienced an inability to release the implement (i.e., dart or cricket ball) towards the desired area (i.e., the dart board and an appropriate area on the cricket pitch). These findings are synonymous with previous investigations in the 'yips' and

focal dystonia literature (Crisp & Moldofsky, 1965; Bindman & Tibbets, 1977; McDaniel et al., 1989; Sachdev, 1992; Smith et al., 2000, 2003; Jabusch & Altenmuller, 2004; Adler et al., 2005). Previous investigations have illustrated, that the 'yips' or focal dystonias as they have been called, involve physical disruptions in the execution of skills. The physical symptoms experienced in golf, darts and cricket are all involved in the execution of the skill. This would suggest that the 'yips' may be a sport-specific focal dystonia.

The psychological symptoms were similar across golf, darts and cricket, which add support for the focal dystonia hypothesis. All participants reported feeling out of control in the environment, a perceived inability to perform the skill, fear of the environment, personal embarrassment, external concerns and a lack of confidence. These symptoms go beyond the simplistic description that the 'yips' involve a choking mechanism (Smith et al., 2000, 2003). These findings suggest that the 'yips' are multi-dimensional in nature. Interestingly, all participants reported fear of the environment, a characteristic Bawden and Maynard (2001) linked with sports performance phobias. Jabusch et al. (2004) and Jabusch and Altenmuller (2004) have shown that musicians with focal dystonia more often reported social phobia and specific phobias than healthy musicians. Future research is needed to explore the phobic aspects of those individuals suffering from the 'yips' in sport.

Participants across sports reported similar reflections on all items measured. Of particular interest were that participants reported intense anxiety and increased self-consciousness during the activity. Bawden and Maynard (2001) indicated that cricketers who experienced the 'yips' cited high levels of self-consciousness as a personality trait. Personality traits have been reported in the dystonia and 'yips' literature; Toichi et al. (2001) reported obsessional personalities in patients with

writer's cramp as opposed to disease and control groups. Similarly, Sachdev (1992) reported that golfers with the 'yips' had a higher tendency towards obsessional thinking. Further research is needed to clarify whether certain characteristics predispose individuals to develop the 'yips'. Care should be taken interpreting these findings as the reflections used have not been statistically validated. Future research should look to support these data using appropriate psychometric tests.

This study extended the research of Smith et al. (2003) in eliciting what individuals thought was the cause of the 'yips'. A higher percentage of golfers, darts players and cricket bowlers perceived the 'yips' to be a psychological problem followed by a physical disturbance rather than vice versa.

An unexpected raw data theme, which emerged from the qualitative analysis, may help to add clarity to the individuals' perceptions (cf. Strauss & Corbin, 1990) in future research. This data theme was labelled 'events prior to the 'yips'' (Figures 3.1 - 3.3) and encompassed the broad spectrum of events prior to the initial disturbance. Eleven percent of participants across sports cited events which occurred prior to the 'yips' developing. Four cricket bowlers (Figure 3.3) talked about developing the 'yips' after a long-term injury lay-off. It would appear one of the darts players had experienced a relationship breakdown at the time they developed the 'yips' (Figure 3.2). One of the golfers got upset and angry with a playing partner prior to experiencing the 'yips' (Figure 3.1). Other examples across sport type included relationship pressures, life transitions, death of a parent and divorce of parents (Figures 3.1 – 3.3). These findings would appear to have similarities with some of the dystonia and movement disorder literature. Schmidt et al. (1994) indicated the presence of profound emotional events prior to the onset of focal dystonia in two women. Similarly, Schweinfurth et al. (2002) indicated that 21% of individuals experienced a major life stress prior to the

onset of spasmodic dysphonia, a disorder very similar to those experienced in occupational tasks. Clinical patients often report traumatic incidents prior to the onset of dystonia (Adler, personal communication). Based upon the similarities the 'yips' seem to show with movement disorders and that movement disorders may have a psychological root cause (Schmidt et al., 1994; Schweinfurth et al., 2002), it would be appropriate for future research to explore the implications that movement disorder literature may have for 'yips' sufferers.

Conclusions and future research

This exploratory investigation was the first study to systematically examine the 'yips' across a range of activities therefore the findings should be considered as somewhat tentative and an initial step to a better understanding of the problem. It is suggested that the 'yips' could be classified as a sport-specific focal dystonia in golf, darts and cricket. Physical disruptions occurred in the muscles involved in the execution of the skills while the psychological symptoms remained consistent. The study indicated that individuals who experience the problem tend to be high in levels of self-consciousness. Future research needs to compare levels of self-consciousness between 'yips' affected and 'yips' non-affected sports people to establish if this variable is an antecedent of the problem. Given the suggestion that the 'yips' may be a form of focal dystonia; it could be that other personality variables such as perfectionism and obsessionalism are high in those with the problem. This study has also suggested that significant life events may exist prior to the 'yips', which in turn may play a role in its onset. Previous research has indicated that significant life events may play a role in the development of various forms of movement disorder. Given the exploratory nature of this study and the obvious limitations with the methodological approach, the following study should look to explore the aetiology more fully. In essence, there is still a great deal of

understanding to be sought regarding the 'yips', therefore the findings within this study should only be used tentatively. Therefore, the next study will look to use a grounded theory based approach to guide sampling, data collection and analysis. Grounded Theory is a theory generating methodology (Strauss & Corbin, 1990). At present there is little theoretical consensus as to what the 'yips' are, what causes it to occur and what factors pre-dispose an individual to being affected by the problem. By using Grounded Theory, it is suggested a theoretical foundation will be provided from which future investigations can be built upon.

CHAPTER 4

4.0 (STUDY 2). UNDERSTANDING THE 'YIPS' IN SPORT: A GROUNDED THEORY INTERVIEW STUDY

4.1 INTRODUCTION

Study 1 of this thesis highlighted that the 'yips' occur predominantly in the sport skills of golf putting, the darts throw, and the cricket bowling action. This contradicts some of the research presented in the review of literature which suggested the 'yips' may be present in other sports. The study tentatively suggested that the 'yips' might be the same problem across three sports. This was based upon the differences experienced in physical symptoms, and similarities, which emerged in the psychological symptoms presented. More specifically, physical symptoms occurred in the execution of the task, which showed similarities with common focal dystonias (Adler et al., 2005; McDaniel et al., 1989; Sachdev, 1992). In addition, individuals across sports cited reported feeling out of control in the environment, a perceived inability to perform the skill, fear of the environment, personal embarrassment, external concerns and a lack of confidence. The study indicated that individuals who experience the problem tend to be high in levels of self-consciousness. An emergent theme, suggested that significant life events might play a role in the onset of the syndrome. It was not a specific aim of chapter 3 to explore these factors yet their emergence in the data warranted further exploration. To provide further support for the findings established in study 1, and develop a deeper understanding of each individual's 'yips' experience, a more in depth study is required to explore the potential of these facets. To develop this understanding, it was deemed appropriate to utilise a Grounded Theory based approach to guide sampling, data collection and data analysis for the second study, as it is a flexible research design. A thorough review of Grounded Theory will now be provided, which will underpin the chosen methodological approach, from which, the

research questions for this study will emerge. This study differs from the Bawden and Maynard (2001) investigation, in that it specifically investigates the qualitative experiences of those with the 'yips' across and within sport. Specifically, the study utilises a constructivist perspective of Grounded Theory, whereby the multiple realities that exist can be examined through interplay between the inquirer and the inquired (Guba & Lincoln, 1989).

Grounded Theory is a theory generating flexible research design. The end product of the research endeavour is not a set of findings or a few themes; rather it is an integrated theoretical formulation that gives an understanding about how people respond to events that occur (Strauss & Corbin, 1998). Put simply, it is a set of concepts that are integrated through a series of relational statements to develop a theory (Hage, 1972). Through the development of a Grounded Theory, the aim is to meet five main outcomes of sociological theory: (a) predict and explain behaviour, (b) advance theory, (c) be applicable outside the domain of research, (d) provide a perspective for examining data, and (e) act as a guide for researching a particular topic (Glaser & Strauss, 1967).

How to achieve Grounded Theory became one of the research debates of the 1990s (Annells, 1996; Becker, 1993; Charmaz, 1995; Glaser, 1992; Melia, 1996; Wilson & Hutchison, 1996). Much of this debate revolved around theoretical and epistemological assumptions. This debate could have been avoided if Glaser and Strauss (1967) and later Strauss and Corbin (1990) had made their epistemological assumptions clear. A number of researchers were left to interpret the assumptions that were made from the original text implicitly. The original text produced by Glaser and Strauss (1967) was criticised as being too abstract, especially for novice practitioners of Grounded Theory (Charmaz, 1995). With this in mind, Strauss and Corbin (1990)

produced an introductory text for users of Grounded Theory. Glaser (1992) wrote a scathing critique of Strauss and Corbin's (1990) book, suggesting that it was too prescriptive and thus forced theory to emerge.

Glaser (1992) holds that theory emerges from data. This suggests that theory is inherently embedded in the data and it is the task of the researcher to discover what the theory is. According to Glaser (1992), the validity of the theory is implicit and the task of actually verifying the data is left to other researchers. The notion of emergence implies 'one reality' or 'one truth' embedded in the data. Annells (1996) suggested that Strauss and Corbin (1990) brought a constructionist perspective to Grounded Theory, focused on an interpreted reality. In contrast to Glaser's (1992) viewpoint, Denzin and Lincoln (1994) suggested there are 'multiple realities' or multiple ways of examining a specific set of data. In the constructionist revision of Grounded Theory, Strauss and Corbin (1990) explicitly instructed researchers to use experience and discipline knowledge as another tool in interrogating the data.

The epistemological debate, which exists, highlights the different ways in which Grounded Theory has been conceptualised. These varying assumptions ultimately influence how Grounded Theory is conducted and how results should be interpreted. What is important is that when Glaser and Strauss first published The Discovery of Grounded Theory (1967) the ideas it promoted were revolutionary.

A researcher's values will ultimately influence the choice of research question, theoretical framework, methods, and dissemination of results. This study will utilise a constructionist revision of Grounded Theory (Strauss & Corbin, 1990, 1998) in examining individual experiences of the 'yips' phenomenon in the pre-dominant sports highlighted from study 1. Ontologically, this means that multiple realities exist, and reality can only be explored through the eyes of the participant. Epistemologically,

subjectivity and interaction are used to understand the multiple constructions which exist in the participant's mind. Methologically, the interplay between researcher and participant results in the identification of many constructions that exist and brings them into as much consensus as possible (Guba & Lincoln, 1989; Lincoln & Guba, 1985). What this means in practice is discussed in the methods and results section. The following section of this introduction will provide an overview of some the methodological assumptions made within the revised constructionist approach. Furthermore, it will show how to ensure quality in the research process, with the use of Computer Assisted Qualitative Data Analysis Software (QAQDAS) in the Grounded Theory methodology.

The constructionist revision of Grounded Theory suggests that concepts form the foundation of theory (Strauss & Corbin, 1998). It is an iterative process that starts inductively with the collection of the data (e.g., one interview) followed by data analysis through the interplay between the researcher, participant and interview schedule, where ideas are formed and explored through each subsequent data collection and analysis (see section 4.2). As concepts evolve during the analysis they are used for subsequent data collection. This allows for data themes to be validated (i.e., the concepts formed represent the realities that exist in the eyes of the participant) in the construction of a theory, which represents the research topic. The identification of relevant concepts involves an interaction between the researcher, the data and the interview schedule (Strauss & Corbin, 1998), thereby heightening sensitivity to the words of the participants. As questions are answered, events are given names that stand for, and explain, the occurrence of events. The idea is to identify as many properties and dimensions of a concept as possible.

During theory development data reduction occurs, so that a data set is represented by a manageable number of relevant categories. The process of weaving the data back together is known as axial coding. Once a researcher has grouped concepts into categories, the data gathered earlier about each concept become part of the properties and dimensions of what are now subcategories of a larger category. Grouping them under a core concept reduces the data even further. This is termed selective coding.

Other important concepts to consider within the constructionist revision of Grounded Theory are those of theoretical sampling, category saturation and memos. Theoretical sampling is the process by which data gathering is directed by emerging concepts in the data. Saturation denotes the point in which no new concepts or further properties or dimensions of existing concepts emerge from the data. Strauss and Corbin (1998) recommended as a general rule that saturation occurs when the data seem repetitive. Finally, comes the concept of memo writing. Memos are an important part of the process in that they enable the researcher to keep track of ever-evolving concepts and more and more complex ideas. Memo writing ensures trustworthiness and authenticity of the data (cf., Sparkes, 2001). From a constructivist stance, this means ensuring the data employs the experiences of the participants through an interplay of the themes and patterns which emerge. Therefore it is important for the researcher to write down their thoughts at each stage of the interview design, data analysis, and theory generation process so that authenticity is guaranteed. From an epistemological viewpoint, memo writing ensures the interaction is used to correctly understand the constructions that exist in the participant's mind.

This study aimed to build upon the findings from the first study, and attempt to generate a theoretical model of the 'yips' experience across and within sport. By using a Grounded Theory approach, the interview schedule will remain reflexive either

examining individual differences across the sports, or, commonalities, which occur between them. This study aimed to investigate the potential causes of the 'yips'; therefore it was deemed important to see if there were contributing factors in the build up to the problem, and furthermore, to examine the first experience. In addition, this study examined the subsequent performances, to see if any potential factors exist which make the problem become long-term.

4.2 METHOD

4.2.1 Participants

Prior to taking part in the interviews, participants were screened for their suitability in the interview process. This was to ensure that participants were experiencing the 'yips' rather than experiencing a temporary reduction in skill performance. Based upon the findings from the previous study, it was deemed that participants must have experienced a dramatic long-term loss in their ability to perform a skill specific to their sport over the past two years. Three (golf, n = 1; darts, n = 1; cricket, n = 1) supposed 'yips' affected individuals took part in an initial interview. A further nine (golf, n = 3; darts, n = 3; cricket, n = 3) 'yips' affected individuals took part in the remaining interview process.

4.2.2 Procedure

Initially, research participants were randomly recruited via the database of 'yips' affected individuals collected in study 1. In the previous study, each participant was required to indicate whether they would be willing to take part in the ensuing investigations. Those participants were sent an email detailing the study, whereby interested parties, in turn, telephoned the principal investigator. Each individual was randomly coded with a number, which ranged from 1 to 44 (golf), 1 to 28 (darts) and 1

to 18 (cricket). A random number table was then created in Microsoft Excel (Microsoft Corporation), and one number was randomly selected from each sport, and these numbers represented the participant who would take part in the initial pilot phase of the study. The remaining participants were sent an email informing them that they would receive a confirmation email at a later date whether they would be required to take part in the study or not. These participants were informed that their participation in the study would be based upon the findings which emerged from the interviews.

Informed consent (Appendix 5) was discussed in detail at the beginning of the interview, with an emphasis on confidentiality and the potential emotional consequences of participation, that being the recall of their 'yips' experience. After a participant signed the consent, interviewing commenced. Each participant was promised the opportunity to review and confirm quotes and other information before publication.

4.2.3 Data sources

Each of the 3 participants who had experienced the 'yips' participated in a 60 to 90 minute in-depth, open-ended interview, during which a number of broad ranged questions were asked to supplement some basic demographic questions: "Tell me, when you experienced the 'yips' the first time, what happened", "How have you been since that subsequent occasion", "How would you describe yourself as a person", and "Were there any changes or factors occurring in your daily life at or around the time the 'yips' started". The rationale behind these broad open-ended questions was to provide a logical process of events which occurred prior to the 'yips' and during the experience. Based upon the research presented in the review of literature, it was deemed important to elicit whether common personality characteristics were prevalent in those with the 'yips'. The interviewer's responses included active listening,

emphatic reflection, and minimal encouragers. At times when the participant talked about something specific, the interviewer used his experience to follow-up asking them to elaborate, be more specific, explain other times they had felt that way, how did it feel, and what were they thinking. The researcher had obtained a Level 1 counselling skills certificate as part of their psychology training. In addition, an appropriate training day in qualitative research methods was attended. After the first 3 interviews, each transcript was analysed so to determine whether similar themes were emerging across the sports, or whether the interview schedule needed to be tailored to the needs of the sport. Specifically, the aim here was to identify whether separate questions needed to be asked for each sport, or whether the questions could be generalised across sports. It emerged that each experience was similar across the sports (see section 4.3); therefore the interview schedule was similar across the three sports. The only difference was in the language used to relate the experience specific to the individual and their sport. In the initial interviews it emerged that individuals had experienced a significant event prior to the 'yips' developing. Based on this, theoretical sampling took place around this theme as it was deemed important to examine this further considering the lack of a viable explanation as to the mechanisms underpinning the 'yips' experience (Appendix 6). Data was collected on four occasions, where after each juncture, data was analysed, the findings were validated by the research team, and the interview guide was re-designed to illicit new information and confirm findings from previous interviews. At each stage, theoretical sampling took place ensuring that participants had experienced a life event prior to the 'yips'. As part of the process, the supervisory team agreed the interview guide (See appendix 6 for memo's relating to the development of the interview schedule) prior to the four data collection points, whereby sampling was then more directed based upon the emergent themes coming out of the data. Furthermore, the supervisory team verified the identification of

categories and nodes from the analysis. After the fourth round of interviews, it was deemed that no new categories or nodes were emerging in the data.

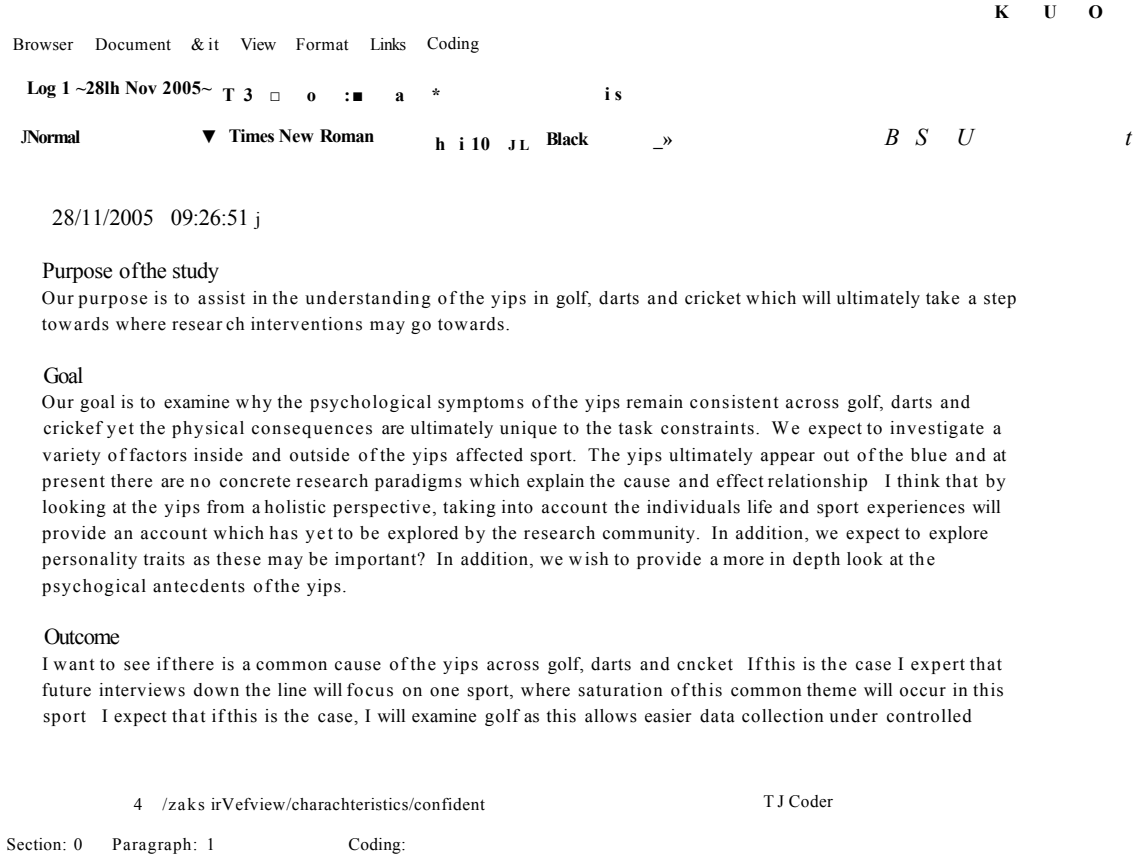
Prior knowledge in a grounded theory project

One of the main tenets of Grounded Theory is that coding should emerge from the data. That is, any concept in the analysis should be supported from the data, rather than preconceived models, theories, or hypothesis. Based on the constructionist approach to Grounded Theory, Strauss and Corbin (1998) encouraged the use of discipline-based knowledge as long as the knowledge fits the data and it is not inappropriately applied to it. In keeping with this, a research journal was started on the 28th November 2005 (for example, see figure 4.1), to record personal thoughts, theoretical ideas and concerns relating to the project (see appendix 6 for other examples). Within the journal, biases were recorded relating to the project. The research journal was used for bracketing before each interview phase, and in supervisory meetings, which took place. The purpose of bracketing was to assist in recognising and acknowledging one's assumptions that might influence the data (Ahern, 1999). Although bracketing allows the researcher to become more objective, it is acknowledged that true objectivity in qualitative analysis can never be reached (Ahern, 1999).

Data collection, NVIVO and analysis

A central concern for rigour in qualitative research is evidentiary adequacy, that is, sufficient time is spent in the field, and the extensiveness of the body of evidence is recorded (Erikson, 1986). The data consisted of over 15 hours of interviews over a period of 9 months. The principal investigator transcribed all of the interviews

Figure 4.1 - Research journal created on 28th November, 2005



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Purpose of the study

Our purpose is to assist in the understanding of the yips in golf, darts and cricket which will ultimately take a step towards where resear ch interventions may go towards.

Goal

Our goal is to examine why the psychological symptoms of the yips remain consistent across golf, darts and crickef yet the physical consequences are ultimately unique to the task constraints. We expect to investigate a variety of factors inside and outside of the yips affected sport. The yips ultimately appear out of the blue and at present there are no concrete research paradigms which explain the cause and effect relationship I think that by looking at the yips from a holistic perspective, taking into account the individuals life and sport experiences will provide an account which has yet to be explored by the research community. In addition, we expect to explore personality traits as these may be important? In addition, we wish to provide a more in depth look at the psychogical antecdents of the yips.

Outcome

I want to see if there is a common cause of the yips across golf, darts and cncket If this is the case I expert that future interviews down the line will focus on one sport, where saturation of this common theme will occur in this sport I expect that if this is the case, I will examine golf as this allows easier data collection under controlled

4 /zaks irVefview/charachteristics/confident T J Coder

Section: 0 Paragraph: 1 Coding:

verbatim (see appendix 7 for sample interview transcript) and the data consisted of over 130 pages of single spaced text. The software programme NVIVO facilitated the iterative process of Grounded Theory. In NVIVO there are many options available to the researcher. Arguably, the choices available in NVIVO return the power of analysis to the researcher who must choose wisely amongst the set of tools. Therefore, prior to undertaking the study, the principal investigator attended a training course led by an international trainer in NVIVO. Based upon the training received and the nature of the study, the following tools used within NVIVO were: document preparation (e.g., rich text), coding (e., inductive, deductive, in vivo or researcher defined) retrieval (e.g., by node, by document, text searches), dynamic links to memos, documents, nodes and visual representations.

The analytic process was based on immersion in the data and repeated sorting, coding, and comparisons that characterise the grounded theory approach (Strauss & Corbin, 1990). The analysis began with open coding, whereby the text was opened up. Strauss and Corbin (1990, p. 97) described open coding as that which "fractures the data and allows one to identify some categories, their properties and dimensional locations". The language of the participants guided the development of code and category labels, which were identified with short descriptors, known as in vivo codes. These codes and categories were systematically compared and contrasted, which formed the development of complex categories.

Throughout the analysis, the principal investigator wrote self-reflective and analytical memos (for example, see figure 4.2) which helped make implicit thoughts explicit, and helped to expand the growing model of the 'yips' experience. Self-reflective memos consisted of thoughts, feelings, and hunches about an interview. Analytical memos (for example, see figure 4.3) consisted of questions, cross referencing, and speculations

Figure 4,2 - Example of self-reflective memo immediately after a cricket interview

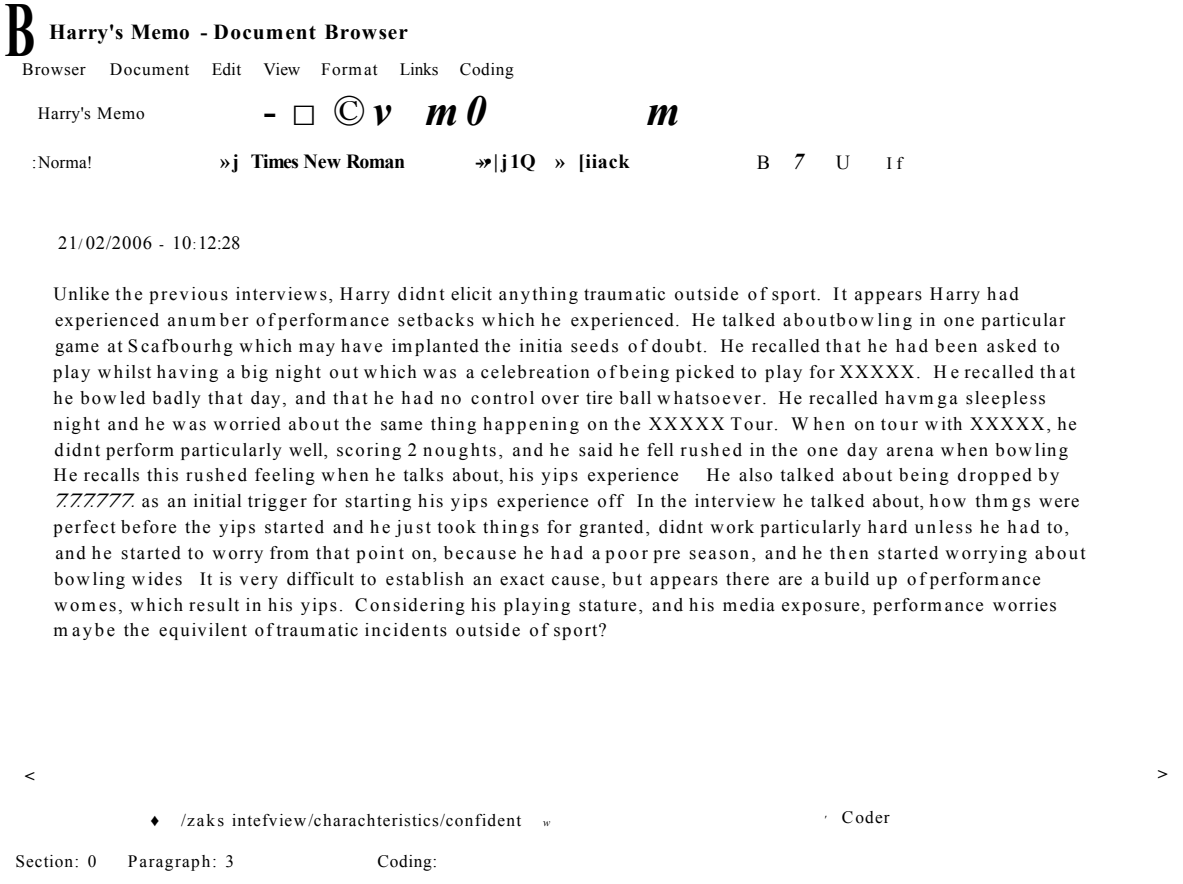
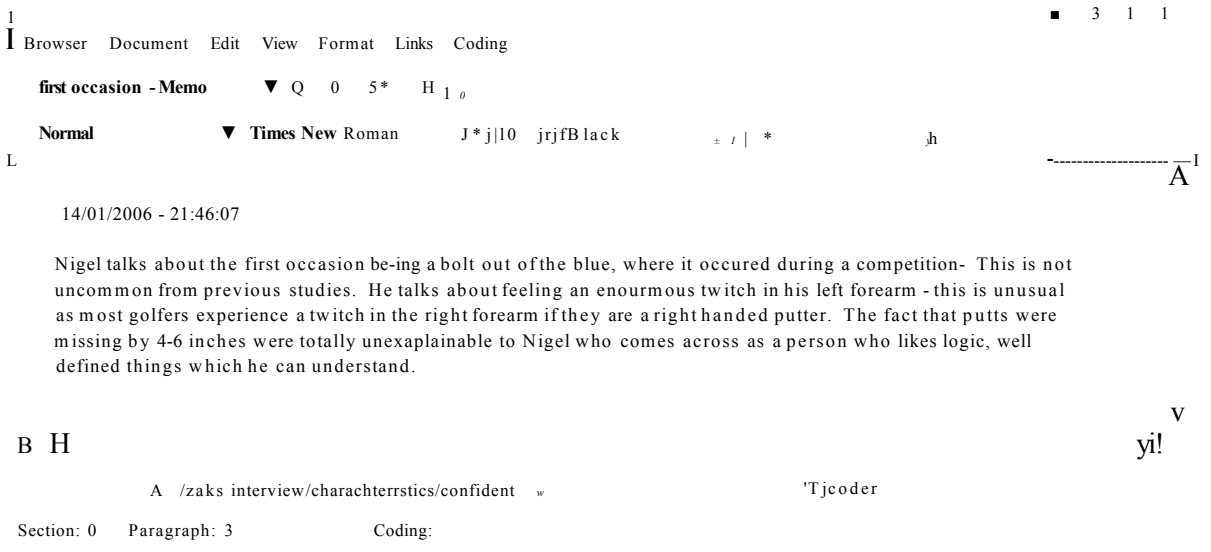


Figure 4.3 - Example of analytical memo for the concept 'First Occurrence'



about the data and the emerging theory. Both types of memos were included in the final analysis. Axial coding followed open coding. Strauss and Corbin (1990, p. 97) stated that this involves putting the data "back together in new ways by making connections between a category and its subcategories". After this process categories emerged, and were given appropriate labels, which described the underlying coding. Finally, selective coding took place whereby tree structures represented the overall models for each interview phase. Strauss and Corbin (1990, p. 116) suggested that selective coding is the integrative process of "selecting the core category, systematically relating it to other categories, validating those relationships, and filling in categories that needed further refinement and development". Subsequently, the interview schedule for each phase was designed so that emerging concepts and relationships could be validated, and so that categories could be further developed based upon the incoming data from latter phases in the data collection. Thus, the questions in the latter interview phase were more specific and directed, in contrast to the more general and broad natured questions in the initial data collection phase.

Codes and categories were sorted, compared and contrasted until saturated. In the context of this study, this meant until the analysis produced no new codes or categories and when all of the data were accounted for in the core categories of the grounded theory model. Strauss (1987) suggested that criteria for core status were: (a) a category's centrality in relation to other categories, (b) frequency of a category's occurrence in the data, (c) its inclusiveness and ease with which it relates to other core categories, (d) clarity of its implications for a more general theory, (e) its movement toward theoretical power as details of the category were worked out, and (f) its allowance for maximum variation in terms of dimensions, properties, conditions, consequences and strategies. From this, models were created in the NVIVO model builder (for example, see figure 4.4). This allowed emergent core concepts to be

Figure 4.4 - Example of model building

compared and contrasted across the interviews. The research team validated the findings so that a holistic model of the 'yips' experience could be developed.

4.3 RESULTS

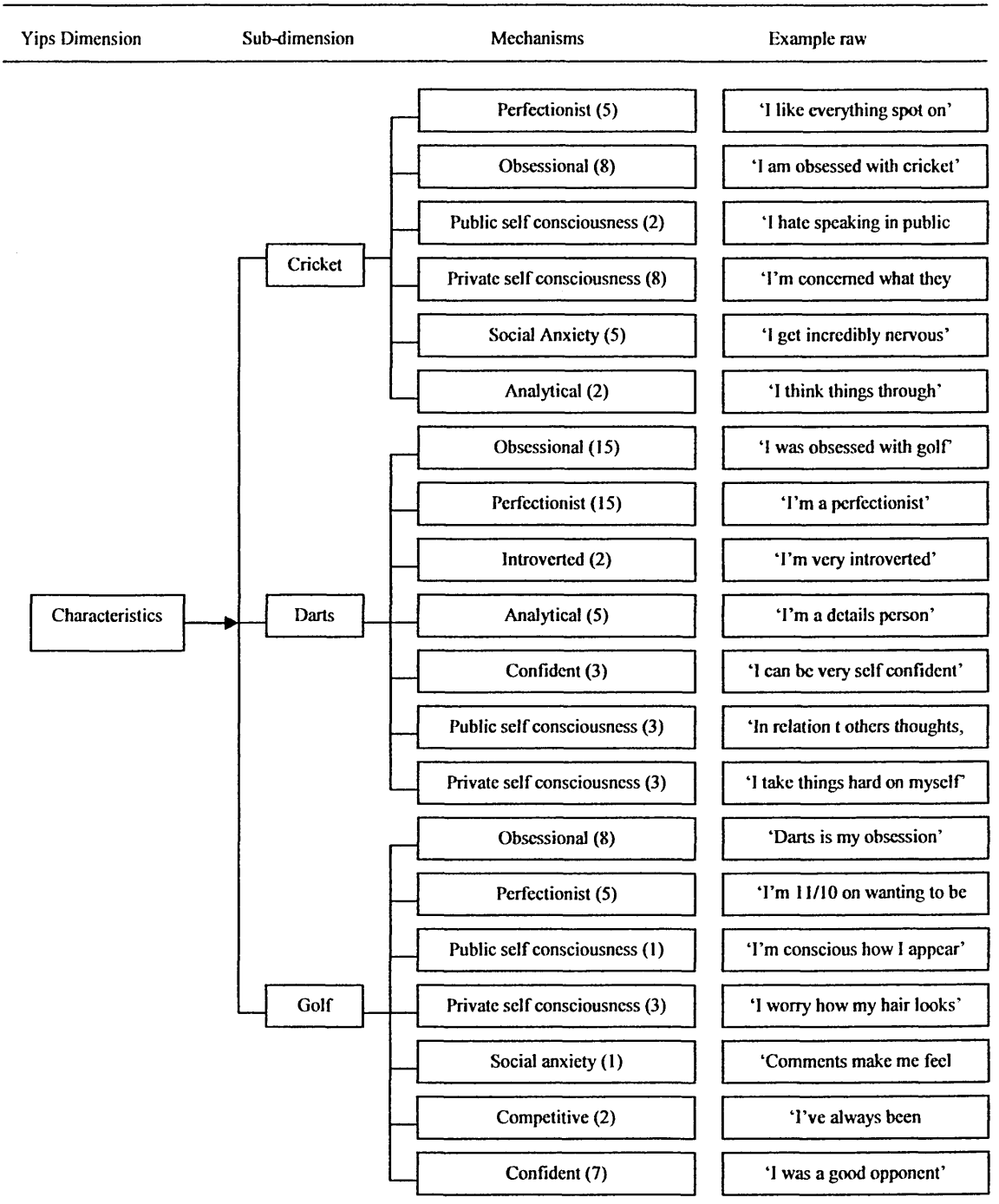
Four primary dimensions were identified within the interview and analysis of the data: characteristics, significant life experience, first experience, and subsequent experiences. In each of the following sections, the dimensions and sub-dimensions are illustrated with text from the interview data used to support the themes presented. At the end of this section, a theory is proposed which demonstrates the commonalities of the 'yips' experience independent of sport type.

4.3.1 Characteristics

Three common characteristics appeared across the 3 'yips' affected sports (Figure 4.5). These findings show similarities with previous focal dystonia research, and furthermore, research which has examined skill failure in sport.

Initially, participants were asked the question, 'Please describe your characteristics as an individual when performing tasks that are important to you'. The first characteristic, which appeared, was perfectionist tendencies. For instance, in the cricket interview, the participant stated: 'Everything has got to be pretty much spot on and if its' not it drives me mad. It frustrates me (laughs).' Similarly, a darts participant stated: 'I'd say I'm a bit of a perfectionist. I'm always of the opinion if you are going to do something do it bloody right otherwise don't bother.' A golfer provided the most comprehensive description:

Figure 4.5 – Personality characteristics of sports people with the 'yips'



"If I'm performing a task I like it to be well defined. I don't like wishy-washy instructions. I like to know what I'm going to do from A to B. It needs to be mapped out (uses hand gestures in a chopping motion to emphasise the point). Beautifully choreographed so I know when to start, what resources I have got, how I'm going to do it, how long it's going to take me and what is expected of me. So, when things are well defined like that I can get stuck into it. And I like to get it done quickly, and accurately."

Based upon this, a probe was used in subsequent interviews to check the relevance of this finding. Of the remaining interviews, 6 out of 9 participants cited perfectionist tendencies when carrying out tasks.

Another characteristic, which emerged from the data, were obsessional attributes. When this characteristic was explored in later interviews, it emerged that participants mainly displayed obsessional thoughts. For instance, one cricketer stated: "I can certainly get stuck in a rut about certain things. I'm also able to get myself out of things by recognising that. I think I can quite easily take things too much to heart, oversensitive perhaps at times".

Similarly, one of the darts players stated: "I do tend to focus in on things and zero in on it. I have a case at work next Tuesday and three days this week I have woken-up going over exactly how to present the case". In addition, one of the golfers stated: "If I was to have an argument with someone I would worry about it, think about it. I can get quite emotional as well. I am quite a deep thinker I suppose. I do look into things". One of the golfers displayed obsessional behaviours in addition to obsessional thoughts. He stated:

"When the cars are parked in the drive, my wife throws her car up the drive. I don't, it always sits in exactly the same position. I'm obsessional and I can rationalise that in myself because it makes things predictable. You know where things are if you put them in the same place all the time. You know how to find things".

Of the remaining interviews, 7 out of 9 participants cited characteristics, which displayed obsessional thinking attributes.

Another characteristic, which emerged within the data, was 'self-consciousnesses'. Initially, when participants were asked to talk about the 'yips' experience, they cited feeling self-conscious about the activity. Therefore, this was explored in subsequent interviews and 10 of the 12 interviewees displayed some aspects of public and private self-consciousness, and social anxiety. The primary aspect of self-consciousness displayed was private. For instance, one of the cricketers cited:

"I'd say my mind is totally scrambled. In latter life I have overcome these things but do occasionally still panic. My brain is definitely not connected to my mouth. They are working as two totally different things. In normal conversations like we are having now, you think about what you are saying and then you say it. Occasionally when I'm doing a speech, I'm not. There are no thought patterns going on. It's talk, talk, talk. There is no pattern to it. It's almost a panic. I can feel myself going bright red and just saying thank you and that would be it. I'd just go and sit down".

Since experiencing the 'yips' one of the darts players stated: "Since this started I have started doing things that I never used to do as much. I worry more about

how my hair looks; I'm brushing my teeth 3 or 4 times a day whereas it was once or twice. I really didn't worry about any of that stuff but now I am a lot more self-conscious". Finally, one of the golfers stated: "you are self-conscious that it is a bit of your game that you can't control. You like to appear to look like you know what you are doing. I don't think the yips allow you to do that".

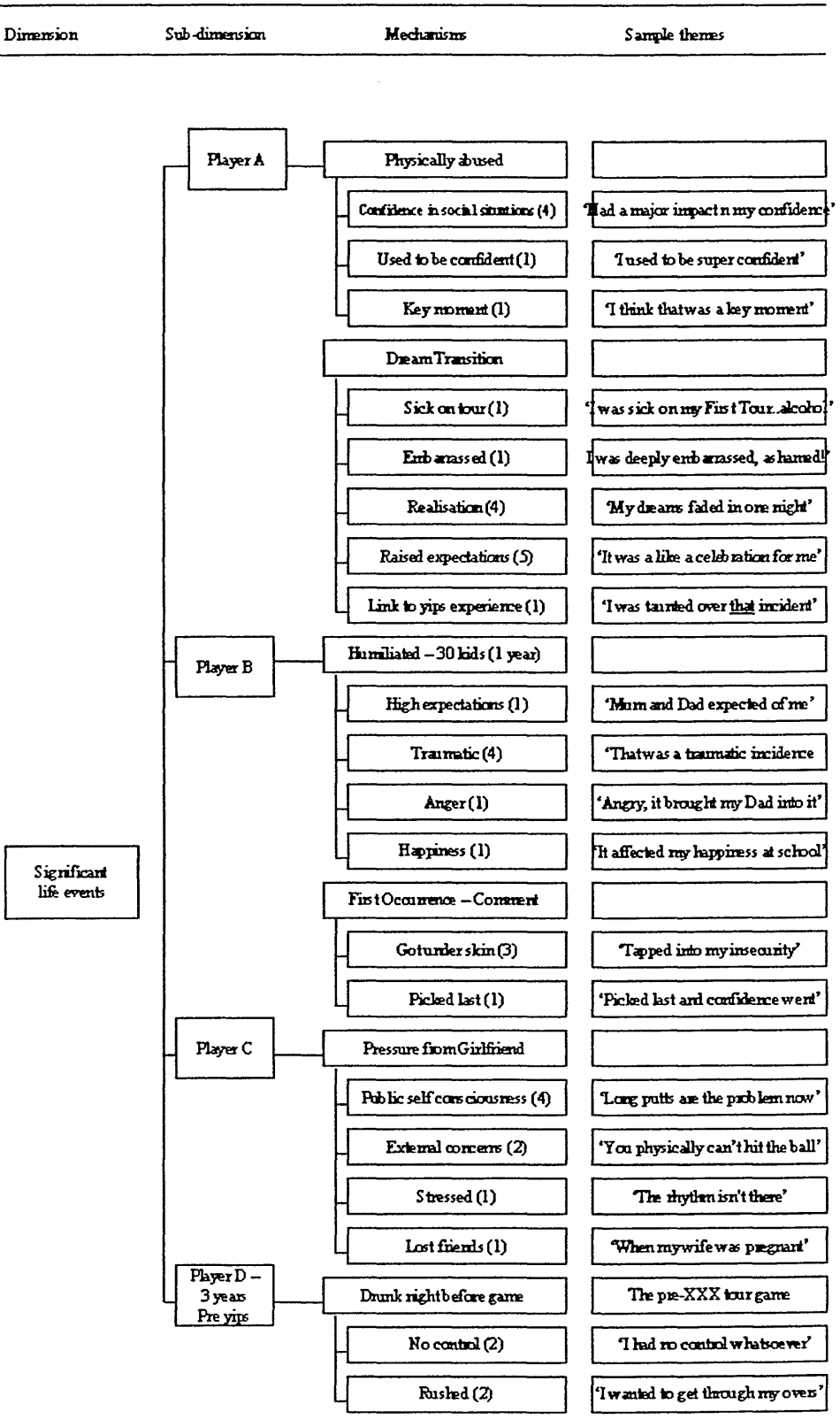
4.3.2 Significant Life Experience

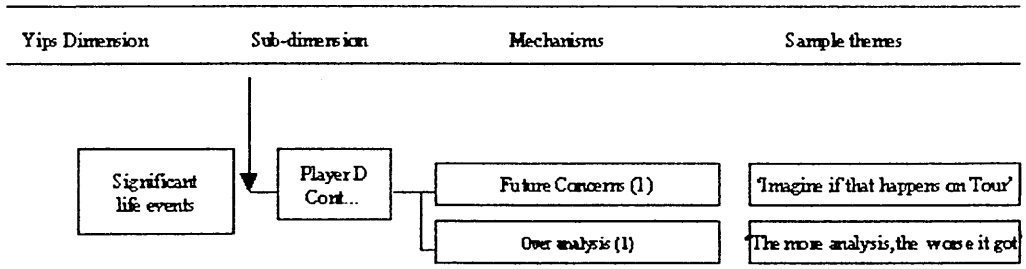
In each of the interviews which took place in the initial phase, participants were asked the question: 'Where there any changes or factors occurring in your daily life at or around the time the 'yips' started'. Each of the participants in that initial phase cited events, which they recalled as significant in terms of their life, prior to the 'yips' occurring. Furthermore, there were a number of instances where triggers were present between the event and the first occurrence of the 'yips'. This emerged from analysis of the data after phase 1. For instance, the cricketer who took part in phase 1 had been asked to play cricket for his County 2nd XI (Figure 4.6). The participant had always harboured ambitions of playing professional cricket:

> "I'd never played in the U17's squad. I'd been in the squad but never played. I used to go and bowl with them and everything like that. And I finally felt that all these years, since the age of 14 where I had not got in through the trials that I had got in at the most important time. So it was like a celebration".

An event took place on the evening of a second XI game whereby the participant was sick due to a drunken night out with the squad. He cited being 'embarrassed' and 'ashamed' by the whole affair and subsequently resulted in him being removed from

Figure 4.6 – Significant Life Events pre 'yips' (Cricket)




Yips Dimension
Sub-dimension
Mechanisms
Sample themes
Significant life events
Player D Cont...
Future Concerns (1)
'Imagine if that happens on Tour'
Over analysis (1)
The more analysis, the worse it got

the County set-up. Interestingly, when the 'yips' appeared the first time, one of the opposition players reminded him of the event that had taken place: 'I was taunted over that when I played against (insert County) in that game I first developed the yips, by the wicket keeper. Also every time we played against (insert opposition player's name) as (insert County) was captain there. So it was always there'.

Similarly, a darts player (Figure 4.7) experienced an event whereby implicit links where evident to when the 'yips' first broke out. The darts player experienced a relationship breakdown: "Actually throwing everything into something because I thought she was the one that I would actually end up getting married to, having kids and all that, and it just didn't happen. For me it was a major blow". He went on to state: "She lived around the corner. I would always go past her house on the way to the pub where I played darts". The darts player stated his 'yips' started between 1 and 2 months after the break-up.

The golfer in phase 1 (Figure 4.8) experienced humiliation at a meeting prior to experiencing the 'yips'. When trying to make what he considered a 'logical' point of view in front of 150 people he was told to 'shut up and sit down'. He went on to say: "so that incident if you like, going out on a limb, it was quite traumatic thinking back on it. Because a lot of people...I enhanced the reputation of being, and the only word I can use to describe it is being gobby, because I was prepared to stand up". He went on to describe how the incident made him frustrated and self-conscious.

As a result of this theme emerging, individuals who had experienced an event prior to the 'yips' were asked to participate in subsequent interviews as it was thought that the range of events could be endless. Furthermore, considering the lack of a viable explanation for the 'yips' experience and the tentative findings from study 1; it was deemed relevant to explore this theme. A similar question was asked in stage 2 of the

Figure 4.7 – Significant Life Events pre 'yips' (Darts)

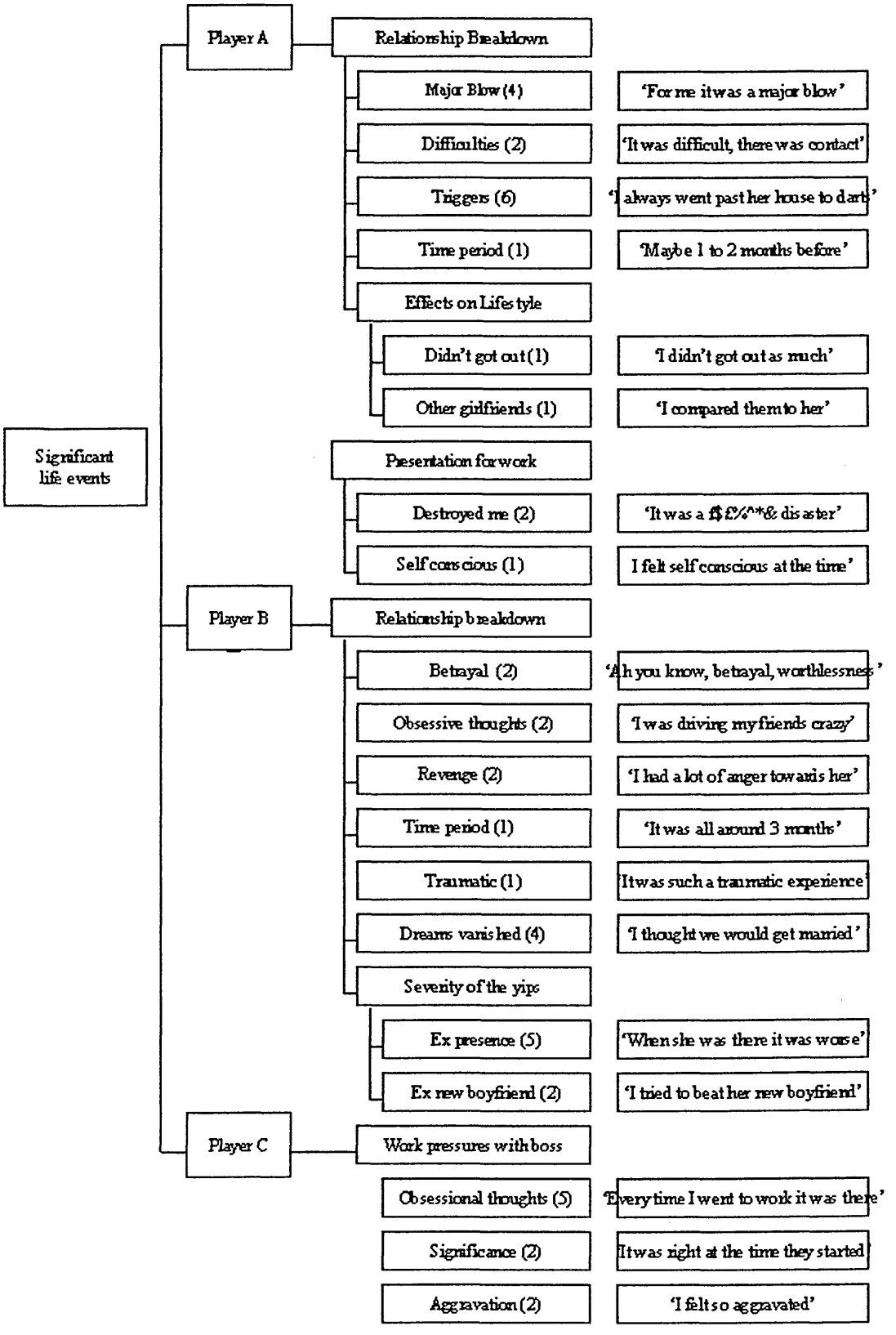
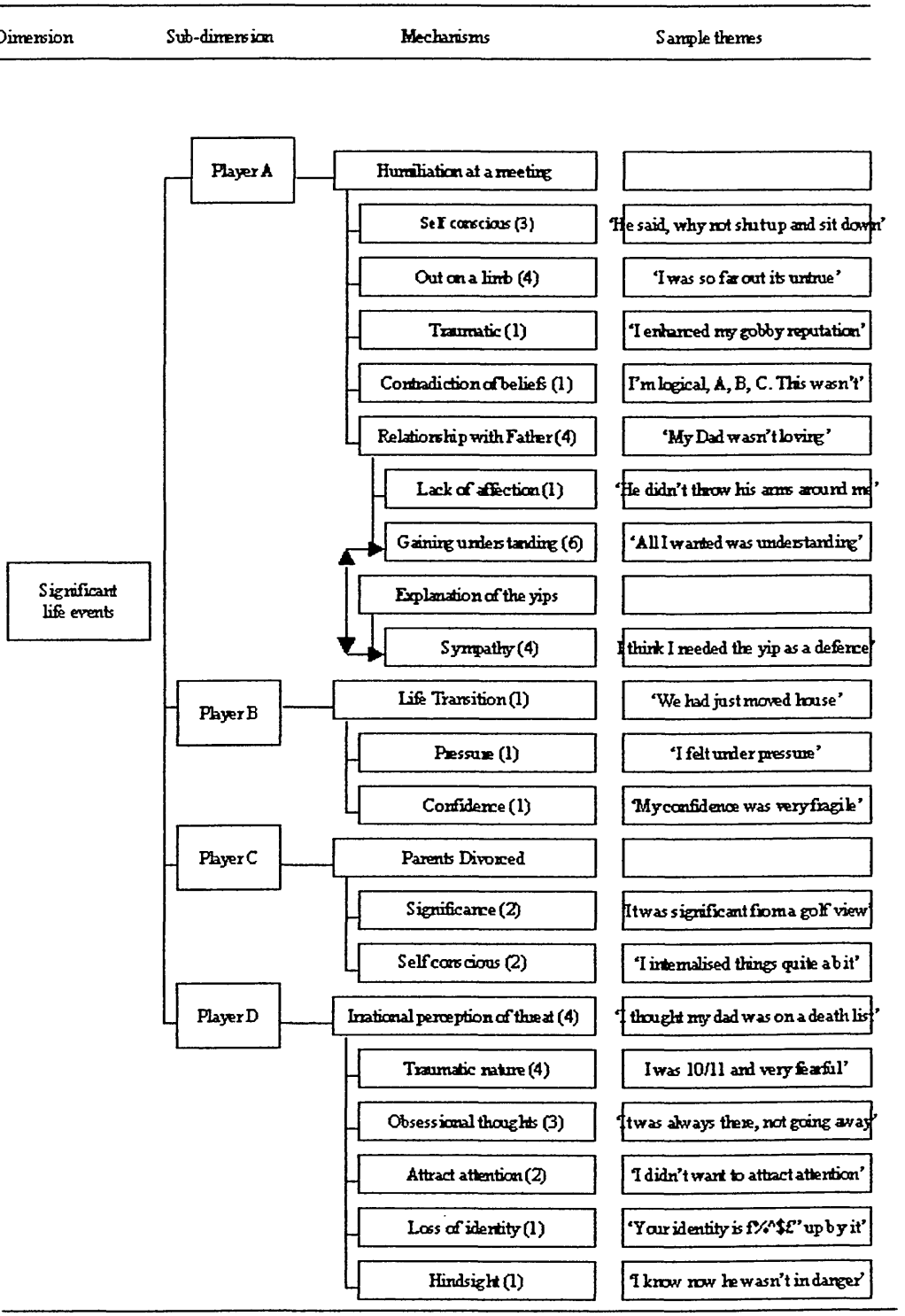


Figure 4.8 – Significant Life Events pre 'yips' (Golf)



interview process, whereby probes were used to try and elicit whether links could be established between the event and the first 'yips' occurrence.

An elite cricketer who had experienced the 'yips' cited a series of events, which appeared to contribute to his 'yips' experience. Three years prior to his perceived 'first occurrence' of the 'yips' experience, his country named him in the International team for an upcoming Tour. Having received the call up, he went out to celebrate the night before a County game he wasn't originally selected for. He stated:

> "I just bowled dross, just throwing it all over the place. So I just put it down to being hung-over and so did other people. Now, I knew in the back of my mind that I had no control over that ball whatsoever. So anyway, as it turns out I bowled three or four overs, went for 30, but bowled about 9 wides in those 3 or 4 overs... So anyway, that night I didn't sleep and I thought shit, imagine if that happens in a one day international. And I think looking back on it, yeah, Christ, looking back I can remember having a sleepless night that night. And in the morning I woke up and thought, oh crock of s*$!, I'm not interested".

The second darts interview revealed a similar theme to that of the previous interviews. Similar to the previous darts player, the participant had experienced a relationship breakdown at the exact time when the 'yips' started. He went onto describe a range of emotions due to the event:

> "Ah you know, betrayal, worthlessness, you know you don't want to be here anymore and that thought did cross my mind as stupid as it may sound. Not wanting to do things, not wanting to eat, not wanting to play, that's one of the things where I got myself to the point where I

would go home do a couple of other things and then play, just to keep my mind off the other stuff".

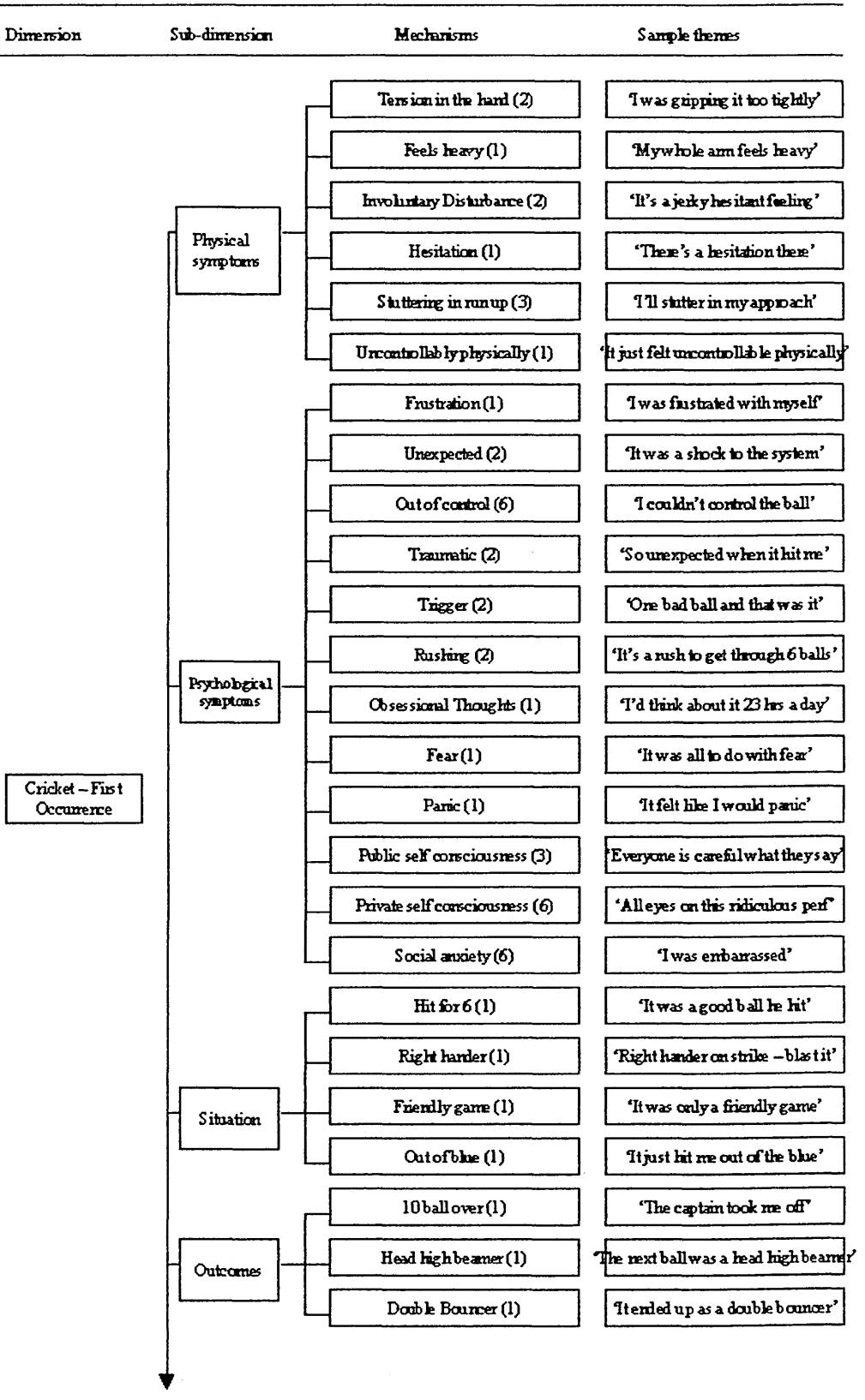
On the first occurrence of the 'yips' he stated: "The first time it happened, it scared the shit out of me. I was in Brooklyn playing for her, and I was like oh my God, this can't happen to me now, these guys are going to have like a new years celebration". Again, this demonstrated the links between the 'yips' and events, which were occurring outside the person's sporting life. In total, these links could be seen in 7 out of the 12 interviews conducted. All of the participants cited events at or around the time the 'yips developed. These included: humiliation, pressure from a girlfriend, moving home, parents getting divorced, work pressures, getting married, and an irrational perception of a death threat to parents.

It is important to note that after stage 2 of the interviews, it was deemed appropriate to gain ethical clearance for the continued exploration of this theme. This was due to the potentially traumatic nature of the recall of these events as each of the participants labelled these events as 'significant' in terms of their lives. Subsequently, appropriate control measures were put in place to safeguard the participants taking part in the interviews and the University Ethics Committee granted ethical clearance. These safeguards included having a Chartered Clinical Psychologist available on-campus during the occasions when the interviews were to be held.

4.3.3 First Experience of the 'yips'

Two consistent themes emerged in the first experience of the 'yips', those being physical and psychological symptoms (see figures 4.9 – 4.11). Similar to study 1, the physical symptoms specifically affected the muscles involved in skill execution. The predominant sensations experienced by the cricketers involved involuntary stuttering

Figure 4.9 – First Occurrence of the 'yips' (Cricket)



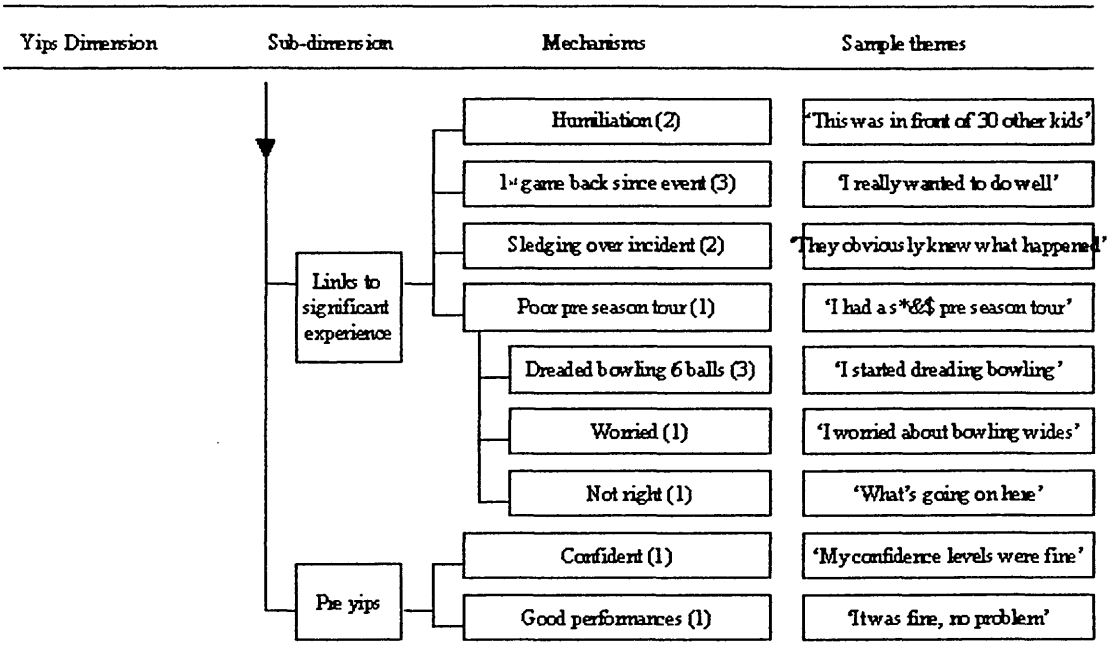

Yips Dimension
Sub-dimension
Mechanisms
Sample themes
Links to significant experience
Pre yips
Humiliation (2)
1st game back since event (3)
Sledging over incident (2)
Poor pre season tour (1)
Dreaded bowling 6 balls (3)
Worried (1)
Not right (1)
Confident (1)
Good performances (1)
'This was in front of 30 other kids'
'I really wanted to do well'
'They obviously knew what happened'
'I had a s*&$ pre season tour'
'I started dreading bowling'
'I worried about bowling wides'
'What's going on here'
'My confidence levels were fine'
'It was fine, no problem'

Figure 4.10 – First Occurrence of the 'yips' (Darts)

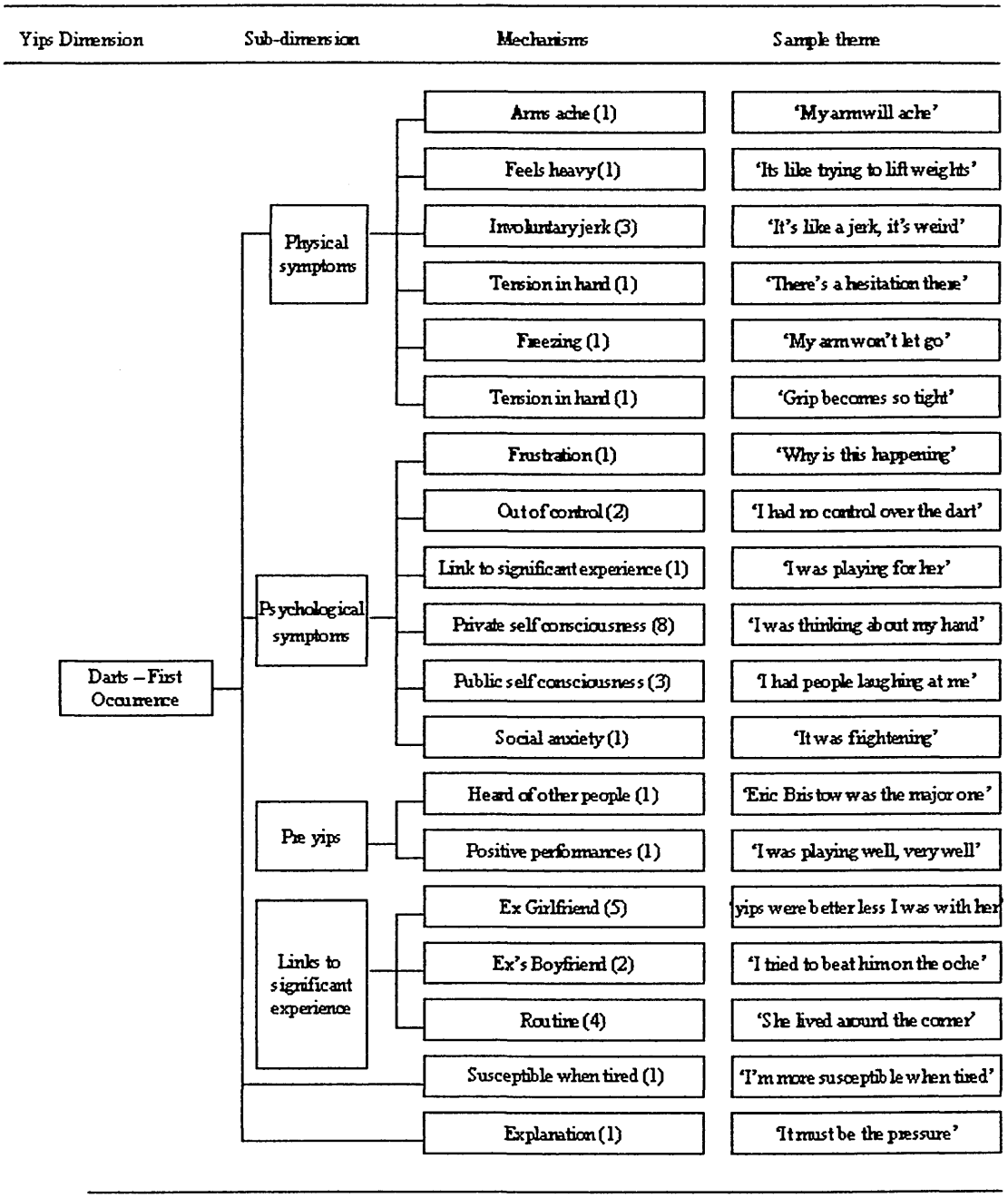
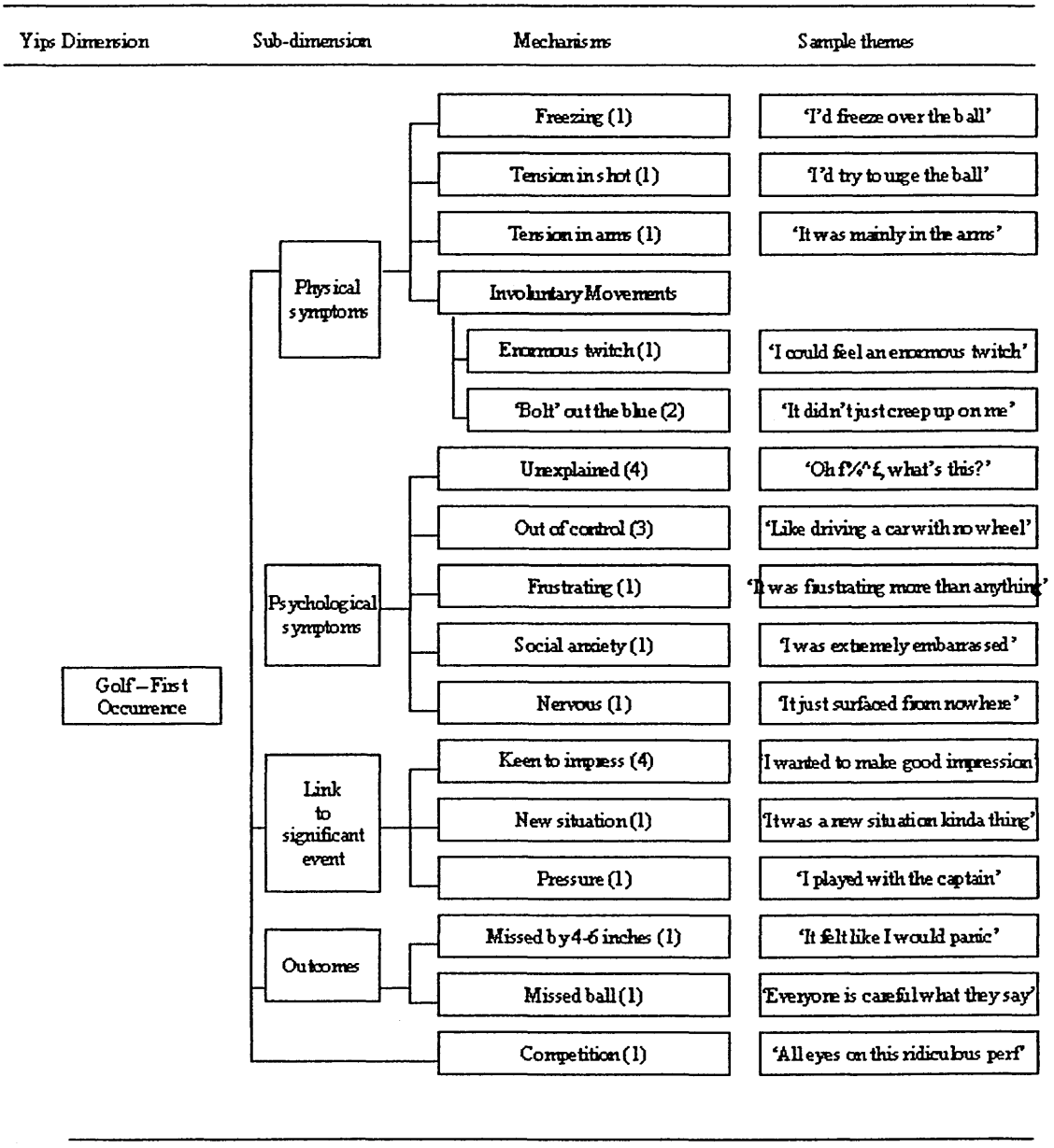


Figure 4.11 – First Occurrence of the 'yips' (Golf)



in the run-up, tension in the hand, and involuntary physical sensations in the release mechanism. For instance, one cricketer stated: "I got this sensation that I was struggling to remember how to run into the wicket". Another cricketer stated: "You feel tension downwards from the hand through to the body. It may work the other way but it is difficult to analyse really as bowling is such a dynamic movement". In relation to the involuntary nature of the 'yips' another cricketer stated: "It's sort of like a hesitation just as you let go of the ball. There is a sort of jerky hesitant feeling as you let go of the ball".

The predominant sensation experienced by the darts players was an involuntary jerk; just at the moment they were about to release the dart. One darts player reported: "I don't know, it's like, if you had an electric shock just as you're about to release, it makes you close your hand". Other sensations included: tension in the hand, freezing in the action of performing the skill, aching arms, and that the dart felt heavy.

The golfers who recalled the first experience of the 'yips' cited similar sensations, but once again these were specific physical symptoms affecting task execution. The predominant sensations were involuntary such as a twitch or a bolt out of the blue. One golfer stated: "I lost 3 and 2 and we shook hands on the 16th and he said, 'you've played me out of the park completely, but your putting has been crap, what's wrong?' And I said, 'It's funny you should say that because something has happened and I haven't got a clue why I've done it but every time I get a short putt I get this enormous twitch in my left forearm". Other sensations included tension of the muscles involved in skill execution, and freezing in the action of performing the skill.

An examination of the psychological symptoms may help provide an explanation as to why the problem becomes long-term. Common sensations independent of sport type

were feeling out of control, frustration, private and public self-consciousness, and social anxiety. For instance, one of the cricketers stated:

> "I definitely felt out of control. I didn't have control of my body. Mentally I didn't feel in control as it felt like I would panic. I don't often lose my temper in a game situation but I did on that occasion when I first 'yipped'. It was all to do with fear. The fear of embarrassment, the fear of showing myself up".

Similarly, a darts player stated: "I rushed to throw the dart. I wanted to get rid of it. Just get the dart in my hand and throw. That wouldn't help my game. My team-mates would be asking why you rushing? I'd be like I'm trying to get the dart out of my hand". Likewise, one of the golfers commented: "It is sort of at the back of your mind where it surfaced from, and it wasn't anything I felt I could do anything about. I felt out of control because I couldn't attribute it to anything. Later on you try and change things. It's not like this is happening because I am doing this wrong".

The feeling of frustration appeared to be directly related to the feeling of not being able to perform the skill. For instance, the cricketer stated: "I wasn't thinking I was just upset, frustrated and angry with myself. I was angry with myself for showing myself up and being so silly, feeling really stupid". Similarly, one of the darts players said: "I was getting aggravated, frustrated, why is this stuff happening you know". Likewise, one of the golfers commented: "It's frustrating more than anything. It's frustrating because you know you can play a good game of golf. Then you get to the little shots where you freeze up and you don't feel confident at all".

The aspect of private self-consciousness will be explored more in the discussion session but it is evident that this may interact with the other personality characteristics.

Only the cricket and one dart players talked about this; however it was explored here as it was felt this may have wider implications considering the similar characteristics displayed across the sport types. The elite cricketer who took part in phase 2 of the questioning provided the most comprehensive explanation of what he thought during that first experience:

> "If I had known then what I know now that it has got worse...I made it worse. The bottom line is I did make it worse through what I was thinking. I would love to have just dealt with it again and just got on with it...dealt with it and took it for what it was...bowling s%*? coz that is what it was...even if it was bowling s%*? for 2 months...go straight through it...through the pain barrier...stop being embarrassed, which is a lot easier said than done. Stop being self-conscious. I mean these people aren't...these people around me they are not doing it for me...that's what I learnt...you have got your friends, you have got your close friends. Nobody is contributing to your bowling. You are the person yourself who is doing it. So looking back on it, I should have just said, you can take the piss out of me, I'm embarrassed but I will get over it".

Similarly, one of the darts players stated how they started to think about the mechanics of the action: "And then all of a sudden, instead of me thinking about the board, I was thinking about my hand, my arm, my body not doing naturally what it has always been able to do". Masters (1992) has shown that conscious processing is harmful to skill execution as consciousness no longer holds the knowledge for skill acquisition once tasks become automatic.

Due to the severe nature of the 'yips', individuals in cricket and darts were aware of the thoughts of those around them. The cricketer stated:

> "People you know are thinking what the f@*k is going on here. And in the dressing room two or three of them are taking the piss. They are thinking, is he taking the piss here or what? And then, you would get the sense of feeling that people don't want to speak near you, and everyone is sort of careful what they say and, oh God, it was absolutely horrendous".

Similarly, one of the darts players stated: "It was so bizarre. It started off relatively like just a bit of a twitch and then the more I tried the harder I tried to play the worse it got and when I've played in different teams I have had people laughing at me".

The combination of factors involved in the first experience of the 'yips' resulted in participants feeling socially anxious. One of the cricketers stated:

> "Oh absolutely. I was embarrassed which speaks for itself. The worse I have ever felt. It was just embarrassing which the worst possible feeling in sport is. It is one thing failing, but it is another feeling embarrassed about it. It is just as low as it gets".

Likewise, one of the darts players stated:

> "It was weird, very strange, frightening to be honest because I knew what it was and I never thought in a million years it would affect me because I've always been such a confident guy, I never thought in a million years anything like that would ever affect me".

Similarly, a golfer stated: "I do remember I was playing in a boys competition, and taking f*&%£!£g 9 shots to get out of a bunker as I kept on 'yipping' it. I was extremely embarrassed. Coming back to golf, it's just been there. There has always been something there".

A theme, which emerged in the golf and cricket interviews, may help explain the psychological and physical symptoms experienced. This theme was labelled 'outcomes on performance'. The severe nature of the 'yips' would appear to have drastic effects on performance. One of the cricketers described bowling 10-ball-overs: "I bowled another couple of overs, but they were all sort of 10-ball-overs, but that was the generosity of the umpires to let me get away with that. Then the captain took me off. But the same thing happened the next time I played". After describing being dismissively 'hit for 6' back over his head, another cricketer cited his next ball: "So the next ball I thought right let's try something different, my quicker ball or whatever, and it ended up as a double bouncer. I had never done that before". One of golfers cited the degree to which the 'yips' affected the outcomes of their putting:

> "Now I'm missing some of these by 4-6 inches (spoken with emphasis). Now I didn't think anything else about that because that was right at the end of the 1999 season and I hate playing golf in winter. I don't recall playing any competitive rounds after that until the start of the next season. And it was at that point I discovered it was something more serious than I had originally thought".

Another golfer described how he completely missed the ball on trying to make a putting stroke.

4.3.4 Subsequent Performances

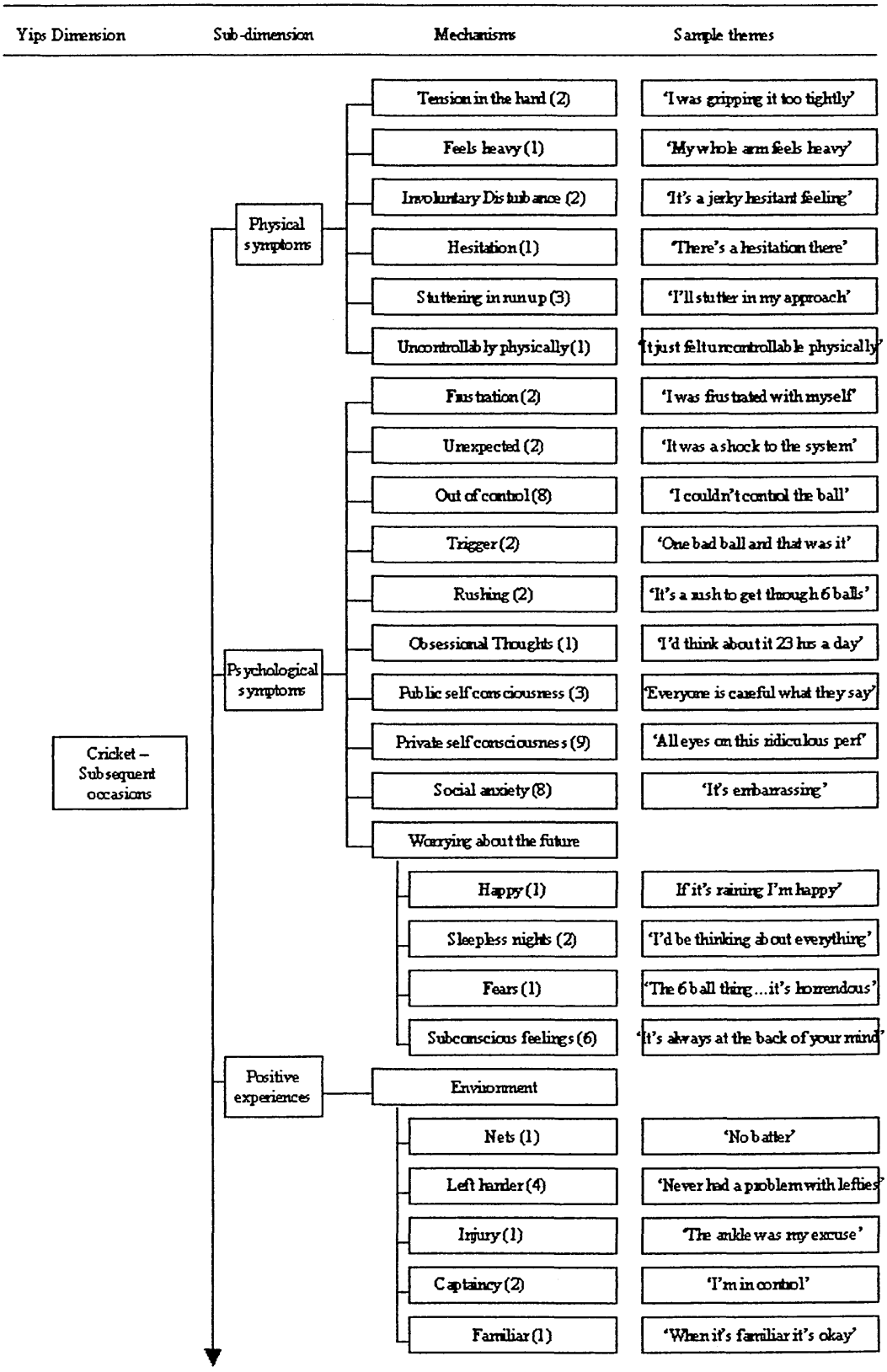
Participants who experienced the 'yips' suffered from prolonged effects of the symptoms experienced in the initial experience, thus making the 'yips' a long-term performance problem (see figures 4.12 – 4.14). The physical symptoms experienced by the cricketers were similar to those experienced in the first occurrence of the 'yips'. Additional physical symptoms explained by the darts players included: involuntary leaning, involuntary tensing of the calf, and a hesitant feeling in the release mechanism. For instance, one darts player stated: "I have got myself pretty much trained whereby I lean and I find my balance going to one side, I will fall over to the left". Another darts player stated:

> "I noticed leading up to this that I was tensing my leg a lot more. It wasn't my arm it was my leg. It was my right leg, which was facing the board, and I would squeeze the calf muscle. It was just something that I would do and then it kind of just worked its way up to the arm".

Another darts player highlighted how the 'yips' had affected the fluidity of his darts throw:

> "The motion of my arm I would say normally was a 1-2-3. When the yips were coming on it was a one (says very slowly), two (says very slowly), three (immediately spoken after). The back pull is like slow, and that's how I know it's coming on and I'm like damn it, here it comes again. You know and I'm trying not to do it but it is almost like involuntary. It's doing it regardless of what I think".

Figure 4.12 – Subsequent Experiences of the 'yips' (Cricket)



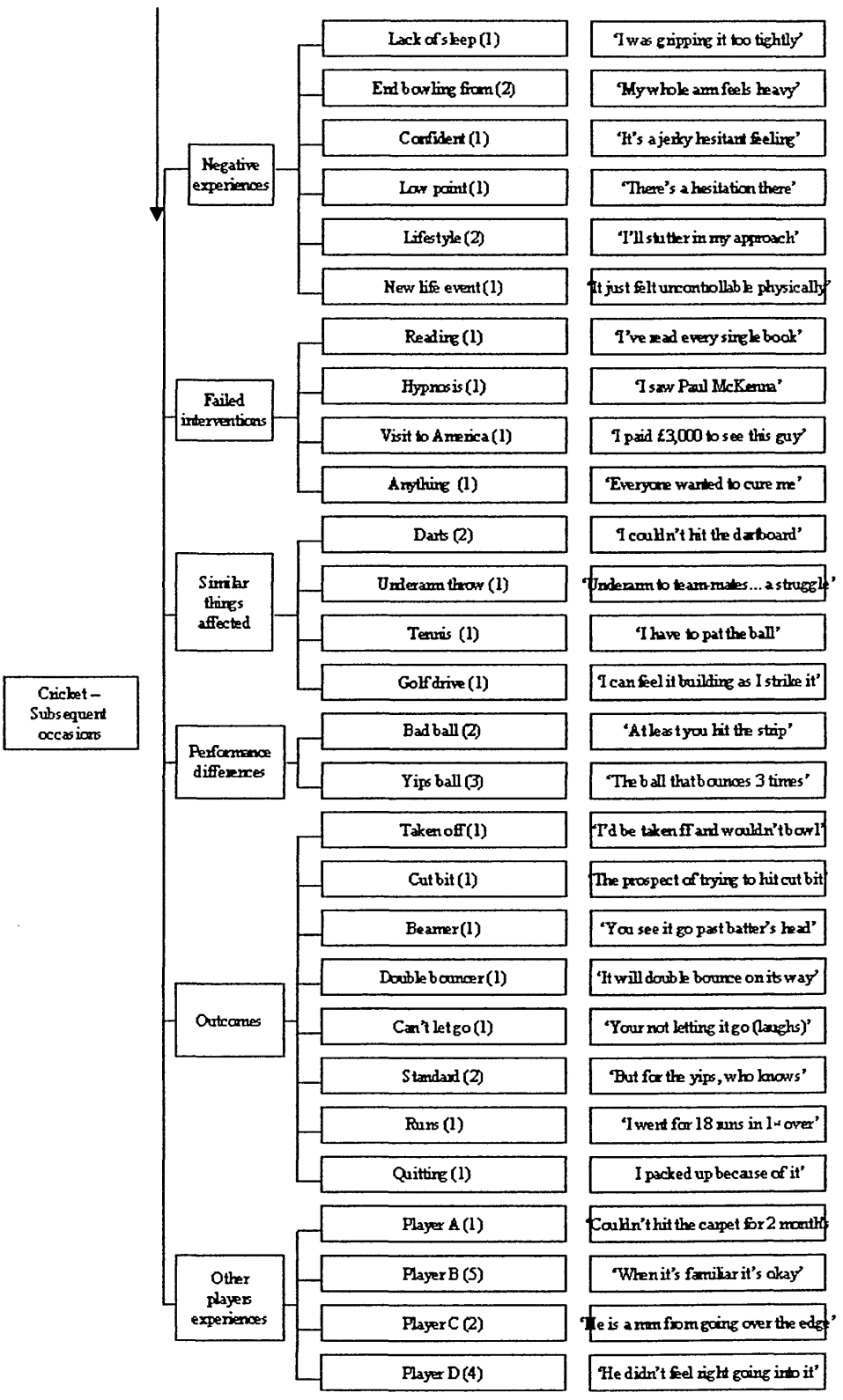
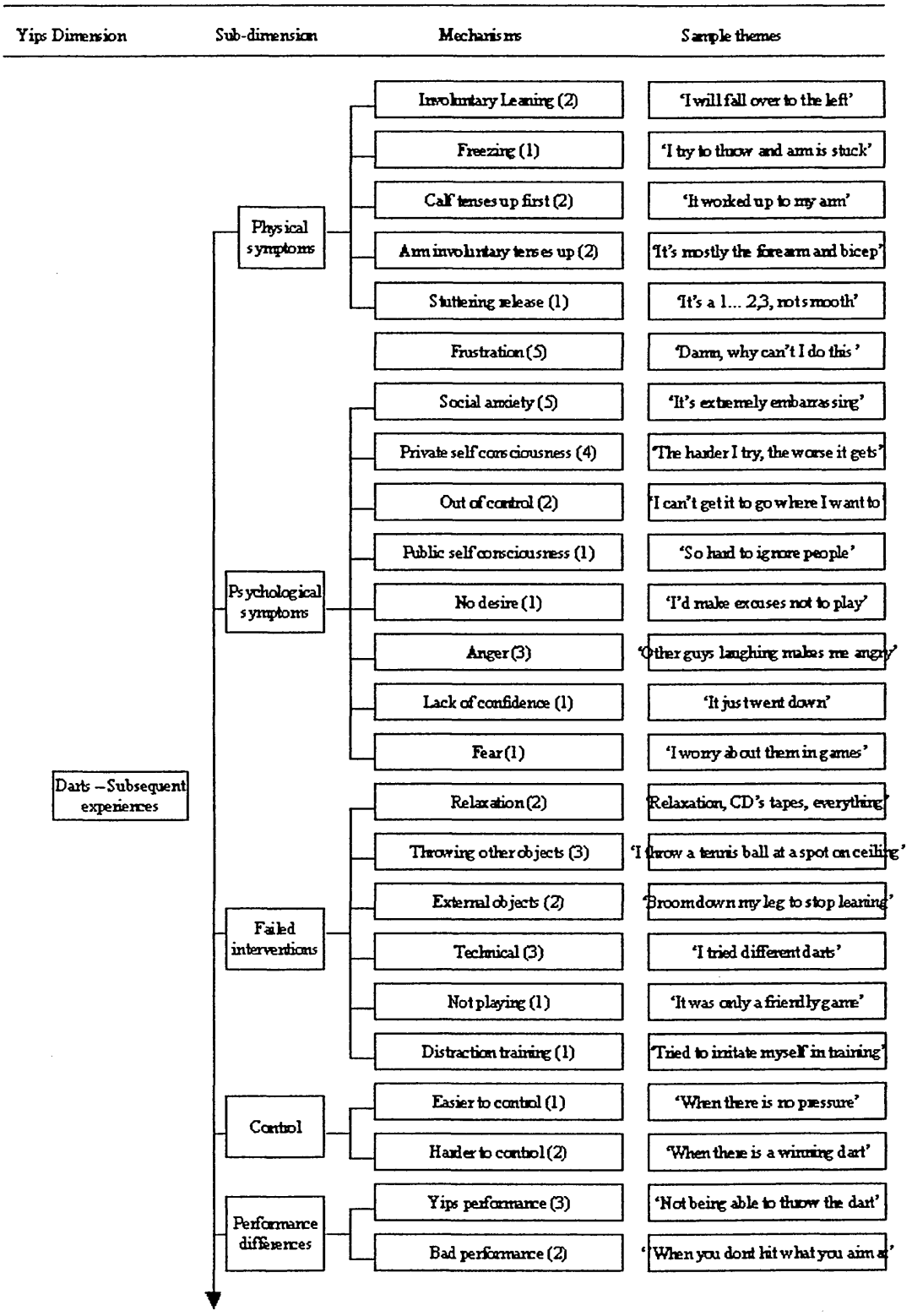

Yips Dimension
Sub-dimension
Mechanisms
Sample themes
Cricket – Subsequent occasions
Negative experiences
Lack of sleep (1)
'I was gripping it too tightly'
End bowling from (2)
'My whole arm feels heavy'
Confident (1)
'It's a jerky hesitant feeling'
Low point (1)
'There's a hesitation there'
Lifestyle (2)
'I'll stutter in my approach'
New life event (1)
'It just felt uncontiollable physically'
Failed interventions
Reading (1)
'I've read every single book'
Hypnosis (1)
'I saw Paul McKenna'
Visit to America (1)
'I paid £3,000 to see this guy'
Anything (1)
'Everyone wanted to cure me'
Similar things affected
Darts (2)
'I couldn't hit the dartboard'
Underarm throw (1)
'Underarm to team-mates... a struggle'
Tennis (1)
'I have to pat the ball'
Golf drive (1)
'I can feel it building as I strike it'
Performance differences
Bad ball (2)
'At least you hit the strip'
Yips ball (3)
'The ball that bounces 3 times'
Outcomes
Taken off (1)
'I'd be taken off and wouldn't bowl'
Cut bit (1)
'The prospect of trying to hit cut bit'
Beamer (1)
'You see it go past batter's head'
Double bouncer (1)
'It will double bounce on its way'
Can't let go (1)
'Your not letting it go (laughs)'
Standard (2)
'But for the yips, who knows'
Runs (1)
'I went for 18 runs in 1st over'
Quitting (1)
I packed up because of it'
Other players experiences
Player A (1)
'Couldn't hit the carpet for 2 months'
Player B (5)
'When it's familiar it's okay'
Player C (2)
'He is a man from going over the edge'
Player D (4)
'He didn't feel right going into it'

Figure 4.13 – Subsequent Experiences of the 'yips' (Darts)



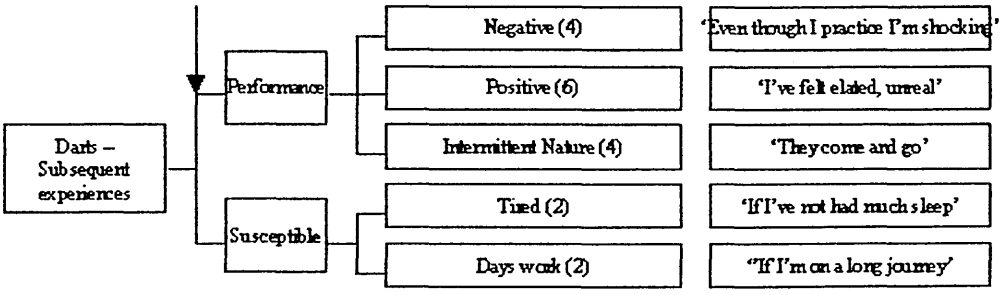
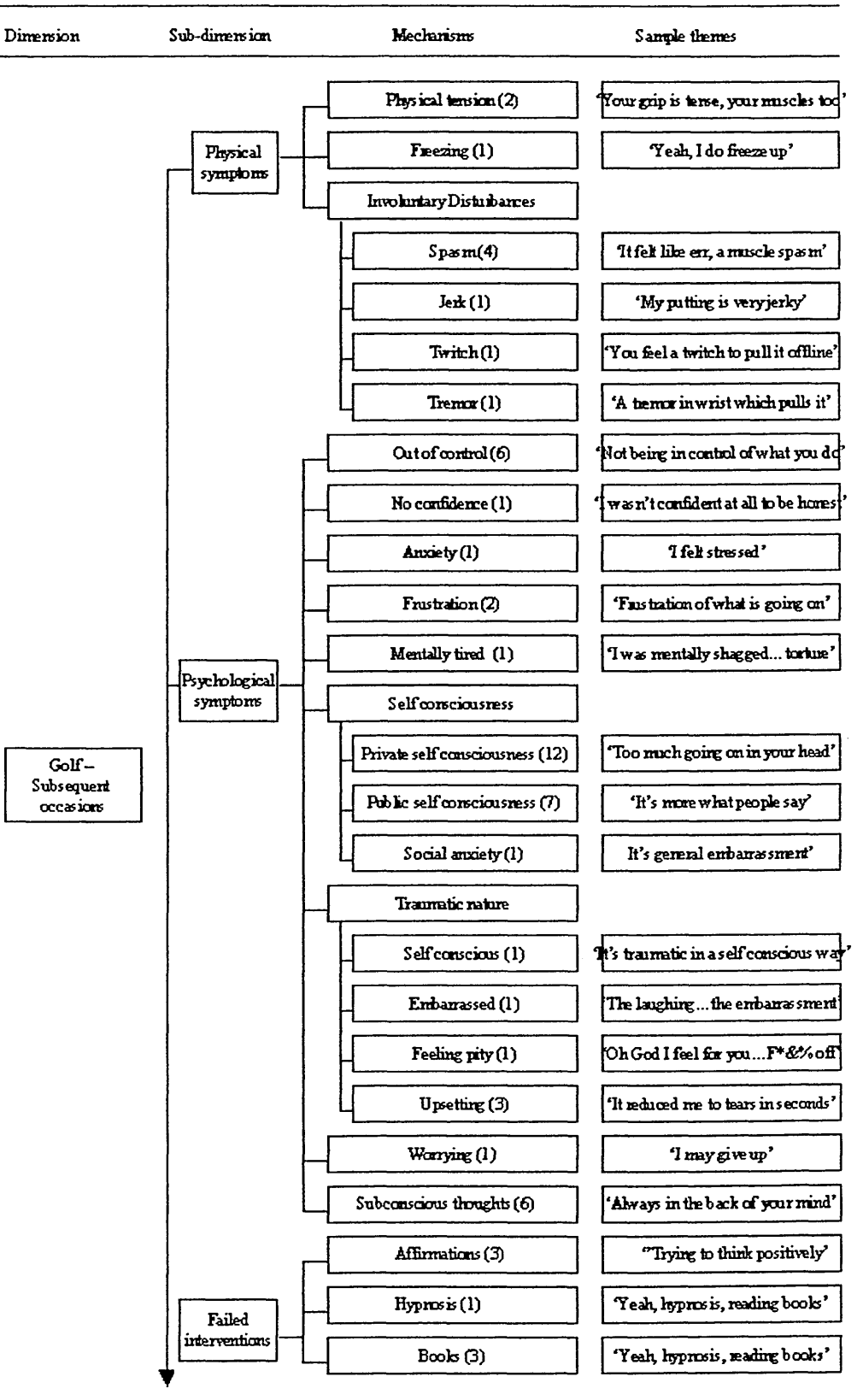
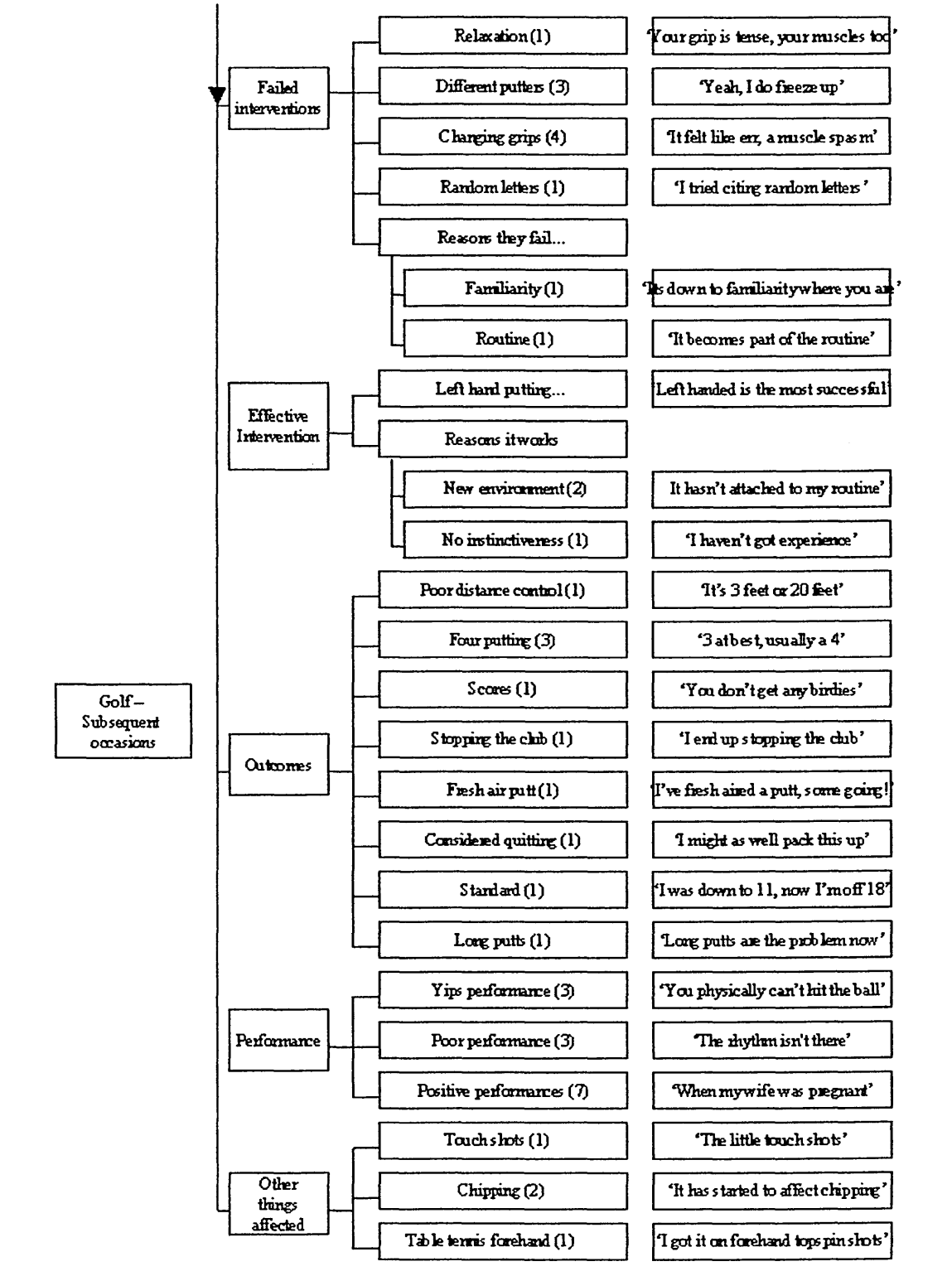

Yips Dimension
Sub-dimension
Mechanisms
Sample themes
Darts – Subsequent experiences
Performance
Susceptible
Negative (4)
Positive (6)
Intermittent Nature (4)
Tired (2)
Days work (2)
'Even though I practice I'm shocking'
'I've felt elated, unreal'
'They come and go'
'If I've not had much sleep'
"If I'm on a long journey'

Figure 4.14 – Subsequent Experiences of the 'yips' (Golf)




Yips Dimension
Sub-dimension
Mechanisms
Sample themes
Golf – Subsequent occasions
Failed interventions
Relaxation (1)
'Your grip is tense, your muscles too'
Different putters (3)
'Yeah, I do freeze up'
Changing grips (4)
'It felt like err, a muscle spasm'
Random letters (1)
'I tried citing random letters'
Reasons they fail...
Familiarity (1)
'It's down to familiarity where you are'
Routine (1)
'It becomes part of the routine'
Effective Intervention
Left hand putting...
'Left handed is the most successful'
Reasons it works
New environment (2)
'It hasn't attached to my routine'
No instinctiveness (1)
'I haven't got experience'
Outcomes
Poor distance control (1)
'It's 3 feet or 20 feet'
Four putting (3)
'3 at best, usually a 4'
Scores (1)
'You don't get any birdies'
Stopping the club (1)
'I end up stopping the club'
Fresh air putt (1)
'I've fresh aired a putt, some going!'
Considered quitting (1)
'I might as well pack this up'
Standard (1)
'I was down to 11, now I'm off 18'
Long putts (1)
'Long putts are the problem now'
Performance
Yips performance (3)
'You physically can't hit the ball'
Poor performance (3)
'The rhythm isn't there'
Positive performances (7)
'When my wife was pregnant'
Other things affected
Touch shots (1)
'The little touch shots'
Chipping (2)
'It has started to affect chipping'
Table tennis forehand (1)
'I got it on forehand top spin shots'

The golfers cited similar physical symptoms to the first experience. An additional explanation of the problem was that it felt like a spasm which affected how the putter struck the ball: "It was a muscle spasm but it wasn't the same muscle spasm every time so you didn't know which way the club would open. Sometimes it would twitch left and sometimes it would twitch right".

An examination of the subsequent psychological symptoms experienced revealed similar findings to that of the first 'yips' experience. Additional dimensions, which emerged, included 'worrying about the future' for the cricket and golf players. The main feeling was that they felt the 'yips' were always in the back of their mind. One of the cricket players stated:

> "It's like a little gremlin in the back of your mind and on your shoulder. It does feel like that, this inner voice, which is devil-like almost. You want to say to it, shut up, shut up, shut up. Sometimes I am able to silence it, but still, I am aware that it is there".

Similarly, one of the golfers stated: "I know when I get a level shot that's when I'm at my weakest, still there at the back of my mind, not able to hit a decent shot, whereas the longer game I'll hit it on the green rather than the little chips".

Likewise, one of the darts players stated: "Yeah, when I go and play in the qualifiers for the World Series of darts I worry about getting them. I want to play well. I would play well in a couple of qualifiers, get on a roll, I wouldn't be thinking about it, I played well".

The elite cricketer who took part in the study also related to how the 'yips' affected his daily life: "I mean I would wake up at 4 or 5 o'clock in the morning, I'd sleep but I wouldn't actually sleep, I'd just be thinking about bowling situations, everything. And

it just took over everything". When in the action, he also explained how fear is always there in cricket due to the fact that it takes 6 legal balls to constitute an over:

> "The 6 balls is the thing...to get through it. It's horrendous. I don't think at the start of the over. I don't think I would have bowled a wide 5th and 6 balls because I have only got 2 to get through. I can remember the feeling now. I get to ball 3 and it would be like, oh, I'm on my way in here, I'm home free. Even if I bowl a wide I have only got a couple to get through. But that was every single over".

An important distinction within the latter interviews was to distinguish the difference between a bad performance and a 'yips' performance. All of the participants cited similar feelings. For instance when examining the cricket data one of the cricketers stated: "The 'yips' are the ball that bounces three times or just doesn't come out and goes 8 foot above the batsmen's head. It's embarrassing". In contrast, a bad performance was described as: "There is playing badly and you are not worried about playing badly. There is having a bad game and there is being knocked all over the field, but at least your hitting the strip and you are not worried about hitting the strip". A similar sensation was reported by one of the darts participants. This definition relates to the smoothness of the throwing action:

> "It feels like you just fall apart. My whole game just falls apart. I'd be throwing at something I wasn't aiming for. There is a definite difference between bad play and dartitis (i.e., a darts player's term for the 'yips') yeah. When you have dartitis you can't throw the dart and you are forcing it out hitting things you're not aiming at".

Likewise, golfers reported how the 'yips' is just not playing well on the day: "Erm...good question...erm...playing badly is just playing the game and maybe it is not happening for you on the day". In contrast, another golfer stated:

> "The yips are when you get over the ball, you are physically unable to hit or when you do hit it the ball goes a yard or something like that. It affected both chipping and putting. You know freezing over the putt, not being able to make the stroke, missing the ball on the putting green".

Since the first experience of the 'yips' all participants were affected in other activities, which they stated, were similar to the 'yips' experience. For instance, one of the cricketers also experienced the 'yips' in the darts throw. Another cricketer suffered from the 'yips' when serving in tennis, and when teeing-off in golf. When he was presented with a narrow fairway he involuntarily 'shanked' the ball to the right. One of the other cricketers cited how he occasionally had problems releasing the ball underarm to his teammates. One of the darts players cited an event when at work, presenting to his colleagues:

> "I will be at a Union meeting, I have about 20 different things to talk about, to discuss things and stuff like that, and it's 100 people and they are all staring at me. I looked up, they weren't looking at me, it just felt they were a lot bigger and they were staring at me, and it was like wow, woo, woo easy. I had to take a couple of deep breaths and then I started to realise I was freezing up".

Interestingly, one of the golfers described how the 'yips' had started to affect chipping. He stated: "It did start to affect chipping. You know those touch shots. Really all kind of touch shots where...you are not playing a full shot. Playing a full shot I'm fine".

Throughout their experience of the 'yips' all of the participants experienced temporary positive performances which were 'yips' free. One of the cricketers cited an event when he had just come back from injury:

> "At that time I had a really really bad ankle. I had sprained my ankle first game back. But it was strapped up...and in the back of my mind I was thinking, if I bowl shit here and it all goes tits up, my ankle will pull me out, because I can just walk off injured. And I was thinking, it's a way out for me here. It's similar to, 'I have only got two balls to go'. I bowled really well as I think I knew I had an escape mechanism in place".

One of the darts players stated: "There have been times when I have been able to throw the darts and I've been able to win leagues, I've won tournaments when I've played well, in money rounds". Similarly, one of the golfers stated:

> "A specific case I can remember was at St. Andrews where there were four of us who worked together and went to play there. I played really well. I played to a handicap of 6 on the old course, which was like unknown. So that was like a one off occasion where I wanted to play well and I did. That has always confused me why it never came out. I putted well, I played well and there were no yips".

Despite the sporadic improvements in performance, all of the participants struggled to overcome the issue. As a result, they had attempted numerous remedial strategies to

help overcome the problem, to little or no avail. Cricketers attempted reading and applying principals in applied sport psychology texts, and hypnosis. The darts players attempted the use of external implements (chairs, broomhandle) to try and stop involuntarily leaning over. They attempted throwing other objects (tennis balls, mustard packets) at targets to try and regain the release mechanism. Others attempted relaxation, distraction training, different darts, different stances, and positive affirmations to try and overcome the 'yips'. Golfers attempted similar strategies to those already listed. The most successful strategy however, was either changing technique completely, or putting with the opposite hand. The golfer who putted left handed described why he though this works:

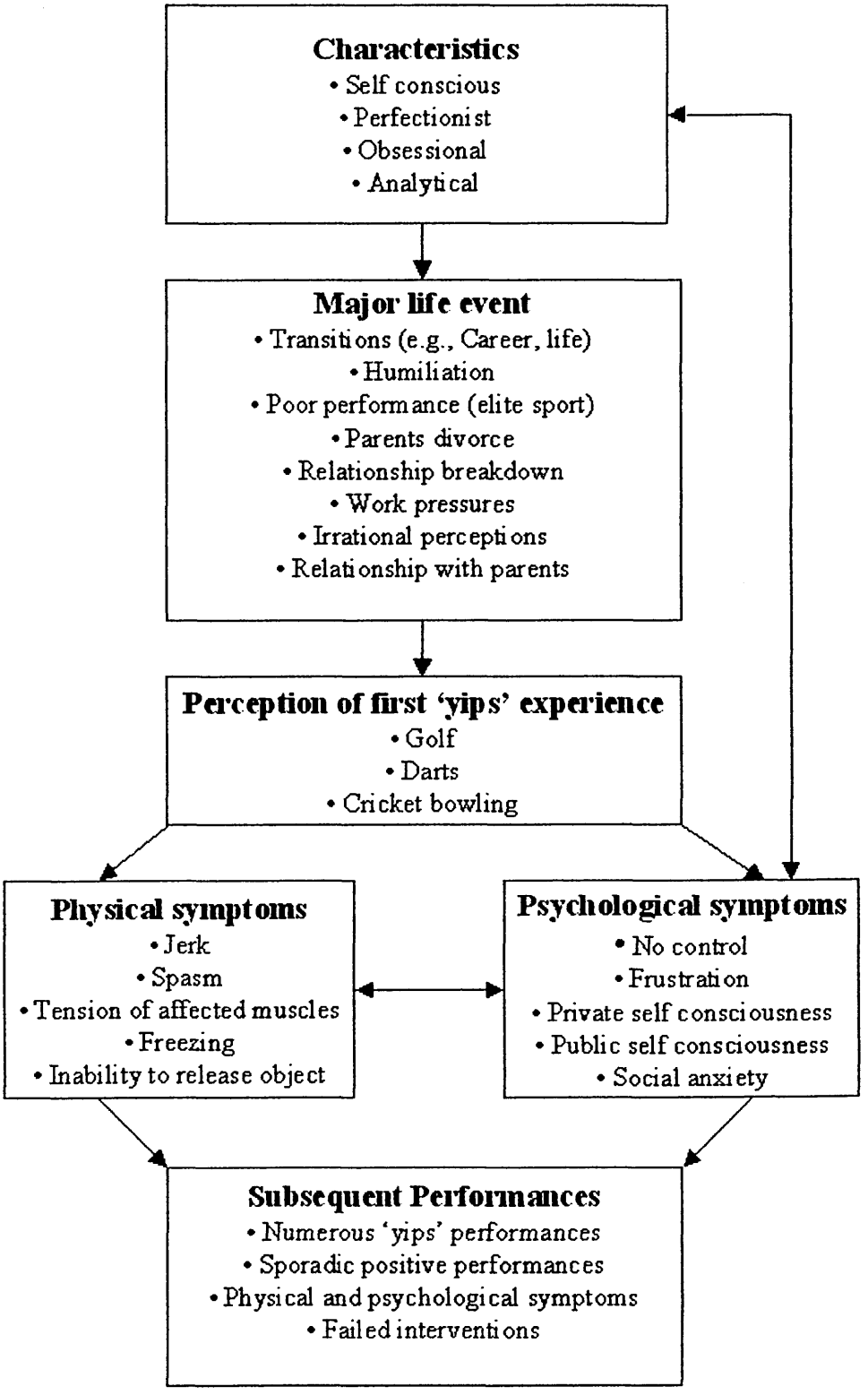
> "I still haven't got myself into a routine. I can't see the putt. Most golfers' routines, they will put the ball down ready putt. They will stand behind it and have a look at it, and they will be able to tell whether it swings to the right or swings to the left, uphill, downhill or level. They will then address the ball, maybe have a couple of practice swings stand behind the ball, and then what nearly every golfer does, they take a couple of looks at the hole and I think when they do that, they are getting feedback information from what they are seeing through their eyes. I'm a normally right-handed putter, which means I turn my head to the left. When I turn my head to the left I can still see which way the land lies and I'm making automatic adjustments from what I'm seeing. This is the instinctive part. When I stand over a putt left-handed and look to the right I can't see a damn thing, I haven't got a clue".

Another golfer mentioned the effectiveness of the broom handle putter but stated how he already took on the idea that the 'yips' would come back to affect that also. Another golfer who rotated between 3 different putters highlighted this point: "I have got three putters, which I rotate around. It works for a little bit then gradually it will come back again".

4.4 GENERAL DISCUSSION

This study aimed to build upon the findings from study 1, and develop a theoretical summary (figure 4.15) of the 'yips' experience, which could be tested in subsequent research studies. Due to the limited understanding of the 'yips' experience across and within sport, it was deemed appropriate to use a grounded theory based approach to guide sampling, data collection and analysis. The study started with a number of broad open questions whereby upon analysis, sampling and subsequent interview schedules became more focused. It was impossible to completely remove researcher bias. To try and minimise partiality, questions were kept as broad as possible. Probes were used within each of these sections to elicit rich information. After each phase (i.e., 1 interview in cricket, darts and golf), data was analysed and the interview schedule was re-designed, either to illicit new information, or confirm findings, which occurred in the preceding phase. In phase 1, the purpose was to establish whether similarities emerged across the three sports. Based upon commonalities which emerged, subsequent interviews were designed to confirm and explore themes emerging in the data. For the purpose of congruity, the flow of this discussion section will follow the path of the summary presented in figure 4.15, whereby its relevance will be linked with previous research.

Figure 4.15 – A summary to display commonalities of the 'yips' experience



The present study suggested that individuals with the 'yips' independent of the three sports investigated, display perfectionist and obsessional characteristics. Care is warranted interpreting these findings as this study only examined the 'yips' across three sports, therefore future research should look to expand and confirm these findings across other 'yips' affected sports. Whether these are personality traits is unclear and is the subject for future research to confirm using appropriate psychometric tools. Recent evidence suggests that perfectionism is more prevalent in those with focal dystonia compared with controls (Jabush & Altenmuller, 2004; Jabusch, Muller, & Altenmuller, 2004). Similarly, there is a great deal of evidence, which suggests that obsessionalism is higher in those with dystonia compared with control groups (Bihari et al.,1998; Cavellaro et al., 2002; Kubota et al., 2001; Munhoz et al, 2005; Rothfeld, 1995; Shulze & Stephan, 1987; Toichi et al., 2001; Wenzel et al., 1998).

Guidano and Liotti (1983) suggested that perfectionism is one of the fundamental traits on the development of Obsessional Compulsive Disorder (OCD) among people with obsessional personality. More specifically, they suggested three things, which categorise people with OCD: perfectionism, a need for certainty, and a belief in perfect solutions. Those beliefs lead the patient with OCD to ruminate over mistakes (past and future) and reject any solution that is not the perfect one, if a less than perfect solution is achieved then it is viewed as a failure. The data would suggest that 'yips' sufferers displayed two of these characteristics. Firstly, they described a number of perfectionist tendencies when carrying out daily tasks, which were important to them. Secondly, 'yips' sufferers displayed a need for certainty, as this was not met when they described a feeling of being out of control in the environment. Future research needs to explore the role of perfectionism in the development of the 'yips' as some sports people may be more prone to developing the problem.

Frost and DiBartolo (2002) suggested that humans expect their actions to have a planned effect, but they do so with the knowledge that unforeseen circumstances may alter the outcome. To cope with any uncertainty, a patient suffering from OCD avoids criticism by engaging in no behaviour that might provoke it. Alternatively, patients try to do things 'perfectly' so one can obtain immunity from criticism. This may explain some fundamental behaviours exhibited by those with the 'yips'. Due to the intolerant persistence of 'yips' symptoms, most of those affected would change their grip, posture or use external implements to gain relief from their symptoms. Most 'yips' affected participants made it their goal to overcome the problem, where they would try almost anything to combat the issue. All participants who took part in the present study had experimented with a multitude of intervention strategies to try and gain relief from the problem, all too little or no avail.

All of the participants, who took part in phase 1 of the interview schedule, cited significant life events prior to the development of the 'yips'. As a result of this, theoretical sampling (Strauss & Corbin, 1990) took place, and a prerequisite for subsequent participation was that the individual could recall a significant event. These events varied across and within sports. Two of the cricketers cited events, which they termed humiliating; one cited sleepless nights over an upcoming international tour, which resulted in a 'yips' performance; and another cited relationship pressures. Three of the darts players cited a relationship breakdown prior to the 'yips', and one cited uncertainty about their future at work due to problems with his manager. One of the golfers cited a humiliating event; another recalled their parents getting divorced; a further golfer cited a life and career transition; and another cited an irrational perception of an event at an early age. These findings were relevant based upon the link that could be established between the occurrence of the significant event and the first experience of the 'yips' in seven of the twelve interviews. It is too presumptuous

to suggest cause and effect, however the correlation and links that appear tentatively suggest life events may be connected to the onset of the 'yips'. It would be unwise to suggest this is the sole cause of the 'yips' as sampling was biased based upon the initial findings from phase 1. However, it may be that triggers within the environment stimulate the initial 'yip'. This would certainly explain why all of the participants cited that the 'yips' were so unexpected.

Evidence within the clinical literature would tend to suggest that individuals with perfectionist tendencies are more susceptible to the anxiety experienced through daily life events. Frost and DiBartolo (2002) suggested the overall critical self evaluations that are part of perfectionism lead perfectionists to experience anxiety in response to everyday situations that other people do not find stressful. Flett, Hewitt and Hallett (1995) found socially prescribed perfectionism to be associated with many indices of stress among teachers. They found that socially prescribed perfectionism was correlated with the frequency and intensity of professional distress and both emotional manifestations of stress. It was argued that perfectionists perceived a greater frequency of stressors in their lives and reacted more strongly to them, perhaps because of their perception that the occurrence of life stressors indicates failure (Flett, Hewitt, & Dyck, 1989; Hewitt, Flett, & Weber, 1994). It may be that perfectionist tendencies resulted in an increase in anxiety above that of people without this characteristic. Given the occurrence of significant life events, the individual's response to them, and the personality characteristics displayed, future research should look to elaborate these data using appropriate psychometric tools. Indeed, if future studies suggest that perfectionism is a trait of those with the 'yips', it would add further to the suggestion that the 'yips' may be caused by significant life events. The reason being that perfectionists experience greater levels of anxiety in response to everyday situations that others do not find stressful.

Indeed, recent evidence would tend to suggest that psychologically significant life events play a role in the onset of varying forms of focal dystonia (cf., Baker & Humblestone, 2005; Crimliskl et al., 1998; Kirsch & Wink, 2004; Lees, 2002; Schmidt et al.,1994; Schweinfurth et al., 2002; Thomas et al., 2006). A recent study used telephone interviews, retrospective charts, reviews and other methods to assess the relationship between underlying psychiatric factors and the long-term prognosis of psychogenically based movement disorders (Thomas et al., 2006). Out of a sample of 227, 33.5% (n = 76) experienced a personal life stress, which preceded the development of the problem. In addition, 28.6% (n = 65) experienced some sort of trauma. Similarly, Schweinfurth et al. (2002) indicated that 21% of individuals experienced a major life stress prior to the onset of spasmodic dysphonia, a movement disorder which is similar to focal dystonia. Schmidt et al. (1994) indicated the presence of profound emotional events prior to the onset of focal dystonia in two women. Clearly, there is a growing appreciation within the movement disorder literature that psychological factors may be present prior to the onset of these movement disorders.

Recent research has suggested that the 'yips' are based on a continuum whereby focal dystonia and choking anchor the extremes (Smith et al., 2000; 2003). The major problem within the Smith investigations was that it was based on a classification system of definitions, rather than a full and in depth exploration of the 'yippers'' experience. Exploration of the initial experience of the 'yips' may help add understanding as to why the problem becomes long term. Similar to the findings in study 1, all participants experienced a multitude of physical and psychological symptoms. The physical symptoms experienced were specific to the requirements of task execution, which therefore adds support for the contention that the 'yips' are a form of focal dystonia (Adler et al., 2005; McDaniel et al., 1989; Sachdev, 1992;

Smith et al., 2000; 2003). For instance, cricketers and darts players experienced tension in the hand, which resulted in a feeling of being unable to release the cricket ball or dart toward the desired area. Golfers primarily experienced an involuntary twitch or jerk, which resulted in the club head going off on a tangent to the desired line of the stroke. Additional physical symptoms included freezing in the execution of the task which supports recent research presented by Adler et al. (2005). These researchers reported co-contraction of the agonist and antagonist muscles involved in the putting stroke (Adler et al., 2005).

There was an array of psychological symptoms experienced during the initial onset of the problem independent of sport type. The common symptoms experienced were a lack of control and frustration. In addition, all participants experienced high self-consciousness while performing. Carver and Scheier (1981) suggested that focusing attention on oneself while performing detracts from important task-relevant cues and has a detrimental effect on performance. Baumeister (1984) concluded from a study on choking that individuals low in dispositional self-consciousness were more susceptible to choking under pressure than individuals high in self-consciousness. Our findings conflict with those of Baumeister (1984) as all of our participants cited high self-consciousness as a personality characteristic. Care is warranted interpreting this finding until appropriate studies are carried out to psychometrically validate the claim. However, these findings would support those of Bawden and Maynard (2001) who also found that cricket bowlers with the 'yips' cited high levels of self-consciousness as a personality characteristic.

Masters et al. (2007) suggest that participants suffering from movement disorders tend to become more aware of their mechanics over time. Paying attention to one's movements is problematic, as consciousness no longer holds the knowledge base

required for performance (Masters, 1992). Masters (1992) refers to this conscious deployment of explicit, declarative knowledge to control the mechanics of a movement as 'reinvestment'.

Future research needs to explore the role of 'reinvestment' in individuals with the 'yips' compared with those that do not suffer from the problem. It is possible that individuals with the 'yips' display higher levels of reinvestment than those who do not experience the problem. Therefore, it is possible that whilst an individual may 'yip' a putt, or a cricket delivery, the individual may not develop the problem long-term, as they do not display the necessary 'reinvestment' attributes to over-analyse the situation. Applied experience informs us that certain individuals have experienced a 'yips' performance, however, these individuals do not display the necessary characteristics to develop the full blown version. It could be that individuals with the long term version of the 'yips' possess perfectionist, obsessional and reinvestment type personalities, which combine to produce the long term affliction.

The present study has added to the findings of study 1. Firstly, the similarities observed in psychological symptoms and differences in physical symptoms, have been confirmed here. This would suggest that the 'yips' are the same problem independent of sport type. This study has tentatively suggested the emergence of a significant life event prior to the development of the 'yips'. Care must be taken when interpreting this finding as the sampling procedure used was biased. However, the study has also highlighted the emergence of perfectionist and obsessional characteristics in those with the 'yips'. Previous research has shown individuals who are high in perfectionism are more susceptible to the negative effects of life stress (Frost & DiBartolo, 2002). Therefore, future investigations should look to examine the affliction using a 'yips' versus a 'non yips' group design, with random sampling. By utilising this sampling

method it will help to remove the bias which has occurred in this study. If individuals with the 'yips' display higher levels of perfectionism than their 'non yips' controls, one might tentatively infer that the occurrence of the significant life event prior to the development of the 'yips' carries more weight. Finally, the study has showed that individuals with the 'yips' are more self-conscious about their movements, therefore may be more prone to the effects of 'reinvestment' (Masters, 1992). Future research needs to explore the role of 'reinvestment' as this could be the factor which distinguishes why the problem becomes long term. Recent research has suggested that those who experience focal dystonia display more obsessional (Toichi et al., 2001), perfectionist (Jabusch & Altenmuller, 2004) and self conscious (Grattan et al., 2001) attributes. Considering the similarities between the 'yips' and focal dystonia, one might expect to find similar patterns emerging in those who suffer from the 'yips' to those that endure focal dystonia. Therefore, future research needs to explore these characteristics to assess whether they are personality traits of those who have the 'yips'.

CHAPTER 5

5.0 (STUDY 3) DO 'YIPS' AFFECTED INDIVIDUALS DISPLAY ELEVATED LEVELS OF PERFECTIONISM, OBSESSIONAL THINKING AND SELF CONCIOUSNESS?

5.1 INTRODUCTION

Chapter 4 suggested that the 'yips' are the same problem independent of golf, darts and cricket. Specifically, the study suggested that the 'yips' result in similar psychological symptoms across the three sports. Furthermore, the 'yips' would appear to manifest in physical disruptions in the muscles involved in skill execution. These findings suggested potential links with focal dystonia, which is experienced in occupational tasks. All of the individuals that took part in the study cited significant life events at or around the time the 'yips' developed. The study also illustrated that individuals cited similar characteristics across the 3 sports, those being high levels of perfectionism, obsessionalism and self-consciousness. It has been shown that perfectionists are more susceptible to the negative consequences of life events than those lower in this characteristic (Hewitt, Flett, & Ediger, 1996). The findings from chapter 4 shared similarities with current movement disorder research. In recent years there has been a trend to examine personality characteristics, which may make someone more susceptible to developing focal dystonia (e.g., Broocks et al, 1998; Jabush & Altenmuller, 2004; Jabusch et al, 2004; Munhoz et al., 2005; Toichi et al., 2001). Researchers have indicated those with focal dystonia display more obsessive-compulsive characteristics (Bihari et al., 1992; Broocks et al., 1998; Cavellaro et al., 2002; Kubota et al., 2001; Munhoz et al, 2005; Rothfeld, 1995; Shulze & Stephan, 1987; Toichi et al., 2001; Wenzel et al.,1998), perfectionist tendencies (Jabusch & Altenmuller, 2004; Jabusch et al., 2004), and self-conscious attributes (cf., Grattan et al., 2001). The purpose of this investigation was to investigate these attributes using

appropriate psychometrically validated tools to confirm the relevance of these findings and assess whether individuals with the 'yips' had elevated levels of these personality traits. A thorough review will now ensue, which will explore the theoretical underpinnings of perfectionism, obsessional compulsive disorder and self-consciousness and why individuals who display 'perfectionist' traits are more prone to daily life stress. At all times, an attempt will be made to link the theory to the current investigation. Once this review has taken place, the emphasis will switch to setting the scene for the current study.

5.1.1 Personality factors: Perfectionism and obsessive compulsive disorder

Recent research (see chapter 2.2 for a more comprehensive review) has shown that those individuals who experience the 'yips' have elevated levels of obsessional thinking (McDaniel et al., 1989; Sachdev, 1992). Furthermore, research has shown that those who are afflicted with movement disorders such as focal dystonia have higher levels of perfectionism (e.g., Jabusch & Altenmuller, 2004; Jabusch et al., 2004) and obsessional thinking (e.g., Toichi et al., 2001) than those who do not suffer from the problem. Considering the links between the 'yips' and focal dystonia, it could be that these performance problems have similar psychological antecedents.

Perfectionism has been closely tied to OCD since the writings of Janet in the early 1900's (Pitman, 1987). Jones (1918, p. 417) described the core of OCD as a "pathologically intolerant insistence on the absolute necessity of doing things in exactly the 'right way'". The DSM IV (www.psychiatryonline.com, visited September 2007) defines OCD as "recurrent and persistent thoughts, impulses, or images that are experienced, at some time during the disturbance, as intrusive and inappropriate and that cause marked anxiety or distress. Straus (1948) emphasised the intolerance of uncertainty in characterising patients with OCD and related it to the development of

perfectionism. Humans expect their actions to have a planned effect, but they do so with the knowledge that unforeseen possibilities may alter the outcome (Frost & DiBartolo, 2002). Therefore, by being perfect, one can avoid criticism. In recent years, several studies have reported high levels of perfectionism among OCD patients, within their parents, or as noticeable childhood traits (Adams, 1973; Honjo et al., 1989; Lo, 1967; Rasmussen & Eisen, 1989; Rasmussen & Tsuang, 1986). Most of the research examining the links between perfectionism and OCD has been among non-clinical or sub-clinical populations.

Psychoanalytical theorists have emphasised notions of perfectionism in their descriptions and theoretical accounts of patients suffering from OCD. To cope with any uncertainty, a patient suffering from OCD avoids criticism by engaging in no behaviour that might provoke it. Alternatively, patients try to do things 'perfectly' so one can obtain immunity from criticism. This would certainly explain two fundamental behaviours exhibited by 'yips' sufferers. Firstly, due to the intolerant persistence of 'yips' symptoms, most of those affected will tend to quit the activity or change their grip or posture, thus gaining relief from their symptoms. Secondly, some 'yips' affected sufferers will literally make it their obsession to try and overcome the problem, where they will try almost anything to combat the problem.

McFall and Wollersheim (1979) proposed a cognitive model of OCD that focused on the cognitive appraisal of threat. They suggested that people with OCD have learned a core set of four assumptions or beliefs that lead them to perceive the world as a dangerous and threatening place, of which two of the assumptions reflect perfectionistic thinking styles. Firstly, they suggest that (McFall & Wollersheim, 1979, p. 335) "one should be perfectly competent, adequate, and achieving in all possible respects". Therefore, they must be perfect to feel good about themselves and

avoid criticism from others. The second perfectionistic assumption is that mistakes or failure to meet goals are catastrophic and deserving of punishment.

In another cognitive theory, Guidano and Liotti (1983) suggested that perfectionism is one of the fundamental traits of the development of OCD among people with obsessional personality. More specifically, they suggested three things, which categorise people with OCD: perfectionism, a need for certainty, and a belief in perfect solutions. Those beliefs lead the patient with OCD to ruminate over mistakes (past and future) and reject any solution that is not the perfect one, if a less than perfect solution is achieved then it is viewed as a failure. Certainly, this type of thinking can be related to the 'yips' experience. In the study of cricket bowlers, Bawden and Maynard (2001) made reference to a number of bowlers who related to their perceptions of future performances. One bowler stated (p. 943): "It's happened before, and I couldn't do anything about it, it will happen again". This suggests that bowlers with the 'yips' can't be certain about their future performances, therefore they avoid the behaviour, which is similar to the earlier theories described (Mallinger, 1984; Mallinger & DeWyze, 1992; Salzman, 1979).

Most of the research examining the links between perfectionism and OCD has used samples of sub-clinical participants. Using non-clinical participants, Ferrari (1995) found perfectionism scores, as measured by the Perfectionism Cognitions Inventory (PCI; Flett, Hewitt, Blankstein, & Gray, 1998) to be positively correlated with the Lynfield-Obsessive Questionnaire (LOCQ; Allen & Turner, 1975). Similarly, Frost, Marten, Lahart and Rosenblate (1990) found significant correlations among most of the subscales of the Frost Multidimensional Perfectionism Scale (FMPS) and the Maudsley Obsessive-Compulsive Inventory (MOCI; Rachman & Hodgson, 1980) and the Everyday Checking Behaviour Scale (Sher, Frost & Otto, 1983) among college

women. The Concern Over Mistakes and Doubts about Actions subscales were most closely related with OCD symptoms. Ferrari (1995) was the first to examine empirically the relationship between perfectionism and OCD in a clinical population. The PCI was used as a measure of perfectionism in this study. Ferrari (1995) found that this clinical sample of patients with OCD had significantly higher scores on the PCI than the two non-clinical college student samples did.

Frost and Steketee (1997) compared FMPS scores of 34 patients diagnosed with OCD, 14 patients diagnosed with agoraphobia, and 35 community control patients. The patients with OCD differed from the community control group on Total Perfectionism, Concern Over Mistakes and Doubts About Actions. The group with agoraphobia also had higher scores than community control participants on Total Perfectionism and Concern Over Mistakes, and the group did not differ from patients with OCD on those dimensions. A potential explanation for this is that perfectionism is the basis for most forms of psychopathology (Beck, Emmery & Greenberg, 1985). Therefore, if the 'yips' is psychogenic in origin, one might expect higher levels of perfectionism and obsessionalism in those with the 'yips' compared with those who do not suffer from the problem.

5.1.2 Personality factors: Perfectionism and Life Stress

Recent research has suggested that significant life events may precede the development of focal dystonias and other types of movement disorder (cf., Baker & Humblestone, 2005; Crimliskl et al., 2006; Kirsch & Wink, 2004; Lees, 2002; Schmidt et al., 1994; Schweinfurth et al., 2002; Thomas et al., 2006). Furthermore, research has suggested that individuals experiencing focal dystonia have elevated levels of perfectionism and obsessional thinking (Jabusch et al., 2004; Jabusch & Altenmuller, 2004). Similarly, in study 2, it was shown that individuals who experienced the 'yips' not only displayed

perfectionist characteristics, they also reported the occurrence of significant life events prior to their development. The theoretical underpinning of perfectionism and life stresses will now be sought. The aim here is now to suggest that these factors are implicitly linked. Moreover, the aim is to provide a rationale for further exploring perfectionism in those with the 'yips' considering the implicit links which have appeared in chapters 3 and 4.

Frost and DiBartarlo (2002) suggest the overall critical self-evaluations that are part of perfectionism lead perfectionists to experience anxiety in response to everyday situations that other people do not find stressful. For example, Flett, Hewitt, and Hallett (1995) found socially prescribed perfectionism to be associated with many indices of stress among teachers. Using the Teacher Stress Inventory (Fimian, 1984) they found that socially prescribed perfectionism was correlated with the frequency and intensity of professional distress and both emotional and physiological manifestations of stress. It was argued that perfectionists perceive a greater frequency of stressors in their lives and react more strongly to them, perhaps because of their perception that the occurrence of life stressors indicates failure (Flett et al., 1989; Hewitt et al., 1994).

Flett et al. (1989) found that perfectionism and life stress interact to predict both high levels of trait anxiety and neuroticism. People who were high in perfectionism and were experiencing high levels of life stress had higher levels of neuroticism and trait anxiety than those with low levels of life stress, or even non-perfectionists who had high levels of life stress.

Fry (1995) found a positive correlation between perfectionism scores and a measure of daily hassles. Likewise, Van Cleve, Frost and DiBartolo (1997) found that the FMPS

total scores and Concern over Mistakes were correlated with the reported intensity of hassles but not their frequency.

Hewitt et al. (1996) found that both self-orientated perfectionism and socially prescribed perfectionism were correlated with interpersonal stressful life events. Similarly, Dean, Range and Goggin (1996) reported a correlation between negative life events as measured by the Life Experiences Survey (LES; Sarason, Johnson & Siegel, 1978) and socially prescribed perfectionism. The LES requires participants to indicate the impact (positive to negative) of a variety of life events such that negative LES scores reflect the degree to which participants perceive their life experiences as having an adverse affect on their lives. Frost and DiBartolo (2002) suggest the association between LES and perfectionism levels may be the result of the cognitive-appraisal style characteristic of perfectionism rather than any real difference in the frequency of life events. It is therefore important to investigate the potential links between perfectionism, life events, and whether they are related to the development of the 'yips'.

5.1.3 The measurement of perfectionism and obsessionalism

Earlier uni-dimensional models attempted to measure the unrealistic expectations and maladaptive concerns of perfectionists (Burns, 1983). These uni-dimensional models were criticised for being over simplistic, limited to clinical settings, and overemphasising the negative aspects of perfectionism (Lynd-Stevenson & Hearne, 1999). Recent investigations in psychology have shown that perfectionism is a complex and multidimensional construct which is manifested in different ways and has links to maladaptive and adaptive forms of behaviour (Frost et al., 1990; Hewitt & Flett, 1991; Hewitt, Flett, Besser, Sherry & Mcgee, 2003). The functional aspect of perfectionism is characterised by setting goals and striving for rewards, while

maintaining flexibility and satisfaction with self. Gould, Diffenbach and Moffett (2002) have shown in sport that, amongst a whole battery of other things, adaptive perfectionism is an associated characteristic of elite performance. In contrast, the dysfunctional aspect of perfectionism has been described as setting rigid goals, high standards, and an inability to feel a sense of fulfilment and distress over one's capabilities (Enns & Cox, 2002). Considering the negative consequences which the 'yips' have on performance, one might expect these individuals to be higher in maladaptive perfectionism.

In order to evaluate the multi-faceted nature of perfectionism, Frost and colleagues developed the FMPS. It was emphasised that the most prominent feature of perfectionism is high standards, which accompany tendencies to be concerned with one's mistakes and uncertain about one's actions and beliefs (Frost et al., 1990). They further argued that perfectionists stress order, organisation and efficiency. In addition, they overemphasise the importance of their parent's expectations and criticisms (Frost et al., 1990). With this in mind, Frost et al. (1990) developed a scale capable of measuring their description of perfectionism. They generated items that were able to conceptually fit the six dimensions of perfectionism that included: (i) Concern Over Mistakes (CM); (ii) Doubts about Actions (DA); (iii) Personal Standards (PS); (iv) Parental Expectations (PE); (v) Parental Criticism; and, (vi) Organisation (ORG).

The FMPS has been used extensively within the psychology literature and has been praised for its psychometric properties (Parker & Adkins, 1995). It is regarded as internally consistent, reliable over time and displays sound concurrent validity (Frost et al., 1990; Frost, Heimburg, Holt, Mattia & Neubauer, 1993). Numerous investigations have indicated that the FMPS and its subscales appear to be related to various psychological problems such as emotional distress (Einstein, Lovibond, & Gaston,

2001; Saboonchi & Lundh, 2003), and anxiety disorders (Anthony, Purdon, Huta, & Swinson, 1998). Of particular interest here is that the FMPS correlates highly with OCD.

Frost et al. (1990) found significant correlations between the FMPS subscales and scores on the Maudsley Obsessive Compulsive Inventory (Hodgson & Rachman, 1977) and the Everyday Behaviour Checking Scale (Sher et al., 1983). In particular, the CM and DA dimensions of perfectionism were closely related to OCD symptoms. Frost, Steketee, Cohn and Greiss (1994) also found that among non-clinical subjects, perfectionism was associated with higher levels of OCD symptoms. Sub-clinical subjects scored higher on nearly all of the dimensions of the FMPS.

More recently, Frost and Steketee (1997) compared FMPS scores of 34 patients diagnosed with OCD, 14 patients diagnosed with agoraphobia, and 35 community control patients. The patients with OCD differed from the community control group on total perfectionism, Concern Over Mistakes and Doubts About Actions. The group with agoraphobia also had higher scores than community control participants on Total Perfectionism and Concern Over Mistakes, and the group did not differ from patients with OCD on those dimensions. A potential explanation for this is that perfectionism is the basis for most forms of psychopathology (Beck et al., 1985). Therefore, if the 'yips' is psychogenic in origin, one might expect higher overall levels of perfectionism in those displaying the 'yips'. Furthermore, if individuals with the 'yips' display OCD symptoms, it would also be expected that 'yips' affected individuals score higher on the CM and DA aspects on the FMPS, as these have been correlated with OCD symptoms.

5.1.4 Personality factors: Pre-dispositions to skill failure

Whilst it is argued that high levels of perfectionism and obsessionalism may make one more susceptible to the initial onset of the problem, it is still unclear why the 'yips' become a long-term movement problem for the sport performer. The findings from chapters 3 and 4 suggest that individuals who experience the 'yips' cited self-consciousness as a characteristic. Whether or not this is a personality characteristic or not remains to be investigated. It has been suggested that those who experience movement disorders are self-conscious about their movements (cf., Grattan et al., 2001). Likewise, Jahanshahi (2000) found that stress and increased self-consciousness increased the severity of dystonia. Grattan et al. (2001) have shown that individuals with stroke were described as highly self-conscious or as 'deep thinkers'. Orrell, Eves and Masters (2004) suggested that participants suffering from movement disorders tend to become more aware of their mechanics over time. Masters (1992) refers to this conscious deployment of explicit, declarative knowledge to control the mechanics of a movement as 'reinvestment'. The following paragraphs will attempt to provide a theoretical foundation for the term reinvestment and how this links with self-consciousness.

Masters (1992) suggested that the 'yips' are related to a breakdown in automatic motor behaviour due to the individual experiencing an extreme form of choking (Masters, 1992). Two attentional hypotheses have been proposed to explain choking, the first of these is distraction (Wine, 1971) and the second is self-focus (Baumeister, 1984). Distraction theories, suggest that performance pressure creates a distracting environment that competes with the attention normally allocated to skill execution (Wine, 1971). Self-focus theories propose that performance pressure increases anxiety and self-consciousness about performing correctly, which in turn enhances the

attention paid to skill processes and their step-by-step control. Attention to performance at this level is thought to disrupt the automated processes of high-level skills that normally run outside the scope of working memory during performance (Baumeister, 1984; Beilock & Carr, 2001; Butler & Baumeister, 1998; Kimble & Perlmuster, 1970; Langer & Imber, 1979; Lewis & Linder, 1997; Masters, 1992). Masters (1992) made a connection between conscious processing and the 'yips' by stating that, "reinvestment of controlled processing in automatic skill may explain choking, and indeed, may explain more severe forms of choking, such as 'dartitis', or the feared 'yips'" (p.345)

Baumeister (1984) presented a model of the choking process in which pressure increased self-consciousness, which, in turn, disrupted the skilful performance. Baumeister (1984) stated that trying to consciously control movements is problematic, as consciousness no longer holds the explicit knowledge of these skills and thus has a detrimental effect on skilful performance. Carver and Scheier (1981) suggested that focusing attention on oneself while performing detracts from important task-relevant cues and has a detrimental effect on performance. Hence distractions through worry, anxiety and self-awareness can contribute to the 'choking' process and can have a negative effect on a motor skill.

In contrast to Baumeister (1984), Masters (1992) proposed the conscious processing hypothesis. The hypothesis states that performers attempt to reinvest conscious control of their movements when they experience increases in anxiety. Traditional cognitive theories of motor learning suggest that skill acquisition proceeds from an initial explicit stage during which the performer gains 'declarative' knowledge of the skill to an automatic or implicit stage when the skill is well learnt (Fitts & Posner, 1967; Orrell, Eves & Masters, 2004). During skill acquisition the learner gains declarative

knowledge of the movement by applying hypothesis testing strategies (Maxwell, Masters, Kerr & Eves, 2001). The resultant knowledge is then employed in working memory[1] to support performance and the efficacy of the applied strategies is evaluated via outcome feedback. Additional verbal instructions may be provided by an external party, such as a coach. With practice the performance becomes automatic, in that it can be carried out without the reliance upon declarative knowledge. Disruption to performance can, however, occur if declarative knowledge used to support performance in the novice stage is voluntarily recovered and reapplied to the task. As a result, imprecise movement patterns associated with a novice are executed and movement fluidity is lost (Masters & Maxwell, 2004).

In a golf-putting task, novice participants were placed into one of five learning conditions (Masters, 1992). The learning conditions were: implicit learning, explicit learning, implicit learning control, stressed control and non-stressed control. In the experimental condition, participants were required to make four hundred practice putts and then perform one hundred putts in a test condition. Masters (1992) hypothesised that those who learned the skill implicitly would be less likely to experience a breakdown in performance when under pressure than an explicitly learned skill. Masters (1992) suggested that those who learnt the skill explicitly would use this knowledge to try and consciously control their actions. Recent research has added

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[1] Working memory (Rudkin, Pearson & Logie, 2007) is a cognitive model used to describe the holding and manipulation of temporary information and is involved with the acquisition of new vocabulary and language comprehension. It is also used in visuo-spatial tasks and those examining episodic buffer. It is assumed that the limited capacity of working memory constrains cognitive abilities.

support for the conscious processing hypothesis (Hardy, Mullen & Jones, 1996; Mullen & Hardy, 2000).

Step-by-step attentional control disrupts or slows down well-learned motor skill performance thought to operate largely outside of working memory (Baumeister, 1984; Beilock & Carr, 2001; Lewis & Linder, 1997). Shea and Wulf (1999) examined how an internal or external focus of attention influences learning. They established that learning with a focus on the effects of movement, rather than the movements themselves, was beneficial to skill development. Similarly, Wulf and Prinz (2001) have shown that directing performer's attention to their movements through 'internal focus' on dynamic balance tasks interferes with the automated control processes that control balance movements outside of conscious scrutiny. It could be that once the initial 'yip' occurs, individuals go back to this earlier stage of learning, where explicit knowledge does not exist thus resulting in skill breakdown.

Mullen and Hardy (2000) further tested the conscious processing hypothesis using skilled golfers in a performance paradigm, in preference to the learning paradigms used in earlier studies. Skilled golfers were asked to putt while shadowing explicit putting instructions to encourage lapses into conscious processing. In a separate condition, the golfers were asked to putt while simultaneously performing a random letter generation task (Baddeley, 1966), as used by Masters (1992) and Hardy et al. (1996b). The function of this was to interfere with the operation of the central executive of the working memory system to prevent skilled participants accessing their explicit knowledge base. Combining the random letter generation task with the performance paradigm avoided the problem of desensitisation associated with repeated use of the task in the learning paradigm. Their results indicated that random letter

generation alleviated performance impairments under high anxiety suggesting that attentional resources were sufficient for performance of the task.

5.1.5 The measurement of self-consciousness through the reinvestment scale

Masters et al. (1993) developed a reinvestment scale to assess the link between personality characteristics and conscious processing under stress. The scale was constructed to assess whether 'reinvestment' could be considered a personality trait. The scale was developed from a number of measures, the private and public self-consciousness scales (S-CS) (Feningstein, Scheier, & Buss, 1975), the Cognitive Failures Questionnaire (CFQ) (Broadbent, Cooper, Fitzgerald & Parkes, 1982) and the rehearsal factor of the Emotional Control Questionnaire (ECQ) (Roger & Nesshoever, 1987). Components of the CFQ were used as it was suggested that a greater predisposition to cognitive failure increases vulnerability to stress. Parts of the ECQ questionnaire were involved because one of the components assessed was 'rehearsal', rehearsal being described as a tendency to mentally rehearse emotional events. The S-CS was also included to assess individual differences in self-awareness as this was considered to be a further component of reinvestment (Masters et al., 1993).

Validation studies revealed a significantly negative correlation ($r = -.59$; $p < 0.05$) between Reinvestment score and performance for a golf-putting task under pressure, a finding subsequently replicated by Masters and Maxwell (2004) and Chell, Graydon, Crowley and Child (2003). Additionally, Liao and Masters (2002) and Maxwell, Masters and Eves (2000), in non-disordered populations suggest that both the amount of declarative task-relevant knowledge held in long-term memory and a strong pre-disposition to use that knowledge (i.e., reinvestment score) are salient predictors of motor performance. Similar findings have been reported in patients with Parkinson's disease. Pall, Masters and Macmahon (2002) reported a positive correlation between

disease duration (i.e., number of days the individual suffered from the problem) and score on the Reinvestment Scale. One might expect, given these findings, that 'yips' affected individuals would have a higher pre-disposition to 'reinvest' conscious control over their actions. An examination of the link between 'reinvestment' and 'yips' affected individuals versus none 'yips' affected individuals may help to explain why the problem becomes long-term.

Self-consciousness is an important eliciting condition for reinvestment. The findings from chapter 4 suggested that individuals displayed high levels of self-consciousness. One might expect, given these findings, that 'yips' affected individuals would have a higher pre-disposition to 'reinvest' conscious control over their actions, which may help to explain why the problem becomes long-term. Furthermore, one might argue that the potential obsessional nature of these individuals may force them to 'reinvest' in this knowledge base more frequently, resulting in the conditioned response (cf., Pavlov, 1927) (i.e., the 'yips').

5.1.6 Summary and aims of the current investigation

This study examined whether individuals with the 'yips' were higher in levels of perfectionism, obsessionalism and self-consciousness compared with those who do not experience the problem. It was hypothesised that those with the 'yips' would display higher levels of perfectionism, obsessionalism and reinvestment than those not suffering from the problem. Based upon previous research which has used the FMPS (Frost et al., 1990), it was hypothesised that 'yips' affected individuals would be higher on the CM and DA aspects of the FMPS, as this would suggest similarities with perfectionism and OCD research. It was also hypothesised that individuals with the 'yips' to be higher in Reinvestment compared with the non-yips group, as this would help to explain the long-term skill failure aspect of the 'yips'.

5.2.1 Participants

With institutional ethics approval and informed consent, a total of 120 male participants took part in the study. They consisted of those who suffered with the 'yips' (Golf, N = 20; Darts, N = 20; Cricket, N = 20) compared with those who had never suffered from the problem (Golf, N = 20; Darts, N = 20; Cricket, N = 20). Participants in both groups were randomly sampled. In chapter 3, participants who experienced the 'yips' highlighted whether they would like to take part in future investigations or not. Participants in the non-yips group were contacted via local sports clubs. The average age of participants in the 'yips' group was 42 years (SD = 10.2; range = 29 – 60 years), and the non-yips group was 43 years (SD = 9.4; range = 32 – 58 years). Participants had an average playing experience of 10.2 years at competitive league level or equivalent (yips = 10.1 ± 6.1 years, non yips = 10.3 ± 5.8 years).

5.2.2 Procedure

'Yips' group: Initially, participants were randomly recruited via the database of 'yips' affected individuals collected in study 1. In study 1, each participant was required to indicate whether they would be willing to take part in the ensuing investigations. Those participants were sent an email detailing the study, whereby interested parties, in turn, called the principal investigator. Each individual's name was placed into an envelope randomly coded with a number, which ranged from 1 to 86 (golf), 1 to 41 (darts) and 1 to 38 (cricket). The numbers were placed into boxes, which were labelled golf, darts and cricket respectively. A total of twenty random numbers were selected from each box, and these participants were contacted in turn,

via email and telephone, to inform the participant that they would be required to take part in the study. The rationale for 20 participants in each group was based upon the cell size ratio of 10 subjects per independent variable (Field, 2000). Perfectionism and obsessional thinking are highly correlated with one another therefore it was deemed unnecessary to obtain additional participants (Frost & Steketee, 1997). Each participant received an email from the principal investigator, which contained two Microsoft Word (Microsoft Corporation, USA) documents containing the measures. For the FMPS (Frost et al., 1990) participants were asked to highlight the number (i.e., 1 – 5) which corresponded with their answer (Appendix 8). On completion of the Reinvestment Scale (Appendix 9; Masters et al., 1993), participants were instructed to put a 'Yes' or a 'No' next to the appropriate statement.

Non 'yips' group: Selection criteria for taking part in this study were that the participant: (i) had never experienced a physical disruption of any skill in their main sport or subsidiary sports played; (ii) had never been diagnosed with any form of movement disorder; (iii) had never had a close family member suffer from any form of movement disorder; (iv) had played competitively in a high standard league or equivalent in golf (i.e., handicap of <6), darts (i.e., league) or cricket (i.e., ECB Premier League) for a minimum of 5 years. The principal investigator made phone calls to local golf clubs, darts organisations and cricket clubs to advertise the project. Posters and advertisements where placed on viewing boards in club houses (i.e., golf and cricket) and (darts) competition rooms. Interested participants contacted the principal investigator and questionnaires were posted out with a stamped addressed envelope enclosed with the principal investigators address. In addition to this, visits were made to local darts competitions advertised in the local press. Visits were also made to golf and cricket clubs on weekends as this was the time most likely to obtain the competitive level of player required for the study. Participants completed the

questionnaires in a similar manner to the 'yips' participants and handed them back to the principal investigator.

5.2.3 Measures

Multidimensional Perfectionism Scale (FMPS; Frost et al., 1990). The adapted FMPS (Appendix 9) is a 35 item questionnaire designed to measure six dimensions of perfectionism: Concern over Mistakes (CM); Doubts about Actions (DA); Parental Expectations (PE); Parental Criticism (PC); Personal Standards (PS); and Organisation (ORG). Frost et al. (1990) reported the Cronbach alpha for functional ($\acute{\alpha}$ = 0.89) and dysfunctional ($\acute{\alpha}$ = 0.91) perfectionism to be satisfactory. Responses on the FMPS are scored on a 5 point Likert scale ranging from strongly disagree (1) to strongly agree (5). Internal consistency for the subscales ($\acute{\alpha}$ = 0.73 – 0.93) and the overall scale ($\acute{\alpha}$ = 0.90) is satisfactory (Frost et al., 1993). Similar investigations on Australian samples of those with OCD have also supported the internal consistency of the subscales ($\acute{\alpha}$ = 0.77 – 0.90) and the overall scale (0.91) (Lynd-Stevenson & Hearne, 1999).

Reinvestment Scale (Masters et al., 1993). The reinvestment scale contains 20 items drawn from three scales that were considered likely to predict individual propensity for reinvestment of controlled processing. Twelve items are taken from the Self-Consciousness Scale (e.g., 'I'm aware of the way my mind works when I work through a problem'; Feningstein et al., 1975). A further seven items are taken from the Rehearsal factor of the Emotional Control Questionnaire (e.g., 'I often find myself thinking over and over about things that have made me angry'; Roger & Nesshoever, 1987). The final item is taken from the Cognitive Failures Questionnaire ('Do you have trouble making up your mind'; Broadbent et al., 1982). Masters et al., (1993) indicated that the Reinvestment Scale in sport has adequate internal reliability (Cronbach $\acute{\alpha}$ = 0.86) and test-retest reliability over a four month period (r = 0.74).

FMPS: One way between ANOVAS (see appendix 10 for SPSS output) were conducted on Sport (i.e., golf, darts and cricket) for total perfectionism, for each of the subscales (i.e., CM, DA, PE, PC, PS and ORG). The purpose of this analysis was to see whether any covariates existed between and within sport type. Independent T Tests were conducted for sport x group ('yips' v 'non yips') on each of the measures highlighted above with Bonferonni adjustments to protect against Type I error. Effect sizes were provided in support of the data, as recommended by Mullineux, Bartlett and Bennett (2001). Prior to the analysis, assumptions of ANOVA and the T Test were checked visually and statistically in SPSS.

Reinvestment Scale: One way between ANOVAS were conducted for Sport (i.e., golf, darts and cricket) to assess for any covariates between sport type. Independent T Tests were conducted for sport x group. Effect sizes were provided in support of the data as recommended by Mullineaux et al. (2001). Prior to the analysis, assumptions of ANOVA and the T Test were checked visually and statistically in SPSS.

5.3 RESULTS

5.3.1 'Yips' groups

Visual and statistical analysis revealed that the assumptions of ANOVA had been met. As expected, one way between ANOVAS revealed no significant differences across the 'yips' affected participants for Reinvestment ($F = (2.20, 24) = 1.76$, $p = 0.182$, ETA = 0.058), and Total Perfectionism ($F = (2, 57) = 0.585$, $p = 0.560$, ETA = 0.02), CM ($F = (2, 57) = 1.958$, $p = 0.151$, ETA = 0.06), DA ($F = (2, 57) = 0.723$, $p = 0.490$, ETA = 0.02), ORG ($F = (2, 57) = 0.758$, $p = 0.473$, ETA = 0.03), PS ($F = (2, 57) =$

0.889, p = 0.417, ETA = 0.03), PE (F = (2, 57) = 2.73, p = 0.07, ETA = 0.087), and PC (F = 2, 57) = 0.803, p = 0.453, ETA = 0.027).

5.3.2 'Yips' to 'non yips' group

Table 5.1 presents means, standard deviations and effect sizes for the 2 groups. As expected, significant differences emerged for reinvestment (t (94.81) = 6.04, p = 0.000), total perfectionism (t (80.13) = 9.07, p = 0.000), CM (t (81.82) = 7.52, p = 0.000), DA (t (95.26) = 3.51, p = 0.001). Unexpected differences also emerged for Personal Standards (t (86.10) = 10.73, p = 0.000) and Organisation (t (84.45) = 25.02, p = 0.000).

5.4 DISCUSSION

This study aimed to build upon the findings from chapters 3 and 4 by examining whether individuals with the 'yips' had elevated levels of perfectionism, obsessionalism and self-consciousness compared to their non-yips counterparts. Based upon the similarities which emerged between the sports in study 2, it was expected that similar underlying personality constructs would emerge independent of sport type for the 'yips' group. In addition, based upon the resultant longevity of the 'yips', it was expected similar findings to occur in measures which predict skill failure. Therefore, it was expected that individuals who experience the 'yips' would display higher levels of perfectionism, obsessionalism and reinvestment, than those who do not suffer from the problem. It was further hypothesised that 'yips' affected individuals would be higher in Total Perfectionism, CM and the DA aspects of the FMPS, as this would suggest similarities with perfectionism and OCD research (Frost & Steketee, 1997). Finally, it was expected individuals with the 'yips' to be higher in reinvestment compared with

Table 5.1. Means, standard deviations and effect sizes for the 'yips' and non 'yips' groups

Variable	Yips	Non yips	Effect size
Reinvestment *	9.95 ± 3.45	6.83 ± 2.00	1.56
Total Perfectionism *	99.6 ± 17.5	77.25 ± 7.6	2.98
Concern over Mistakes (CM) *	26.88 ± 6.94	19.50 ± 3.11	2.37
Doubts about Actions (DA)*	10.53 ± 3.46	8.71 ± 2.02	0.93
Personal Standards (PS)*	23.9 ± 5.03	16.12 ± 2.48	3.14
Parental Expectations (PE)	11.63 ± 3.99	10.76 ± 2.49	0.34
Parental Criticism (PC)	8.45 ± 3.83	8.60 ± 2.20	0.06
Organisation (ORG)*	21.33 ± 5.51	13.55 ± 2.41	3.23

* denotes significantly different at the 0.005 level

the non-yips group, as this would help to explain the long term skill failure aspect of the 'yips'. This study confirmed the majority of experimental hypotheses. Studies 1 and 2 showed that differences emerged in the physical symptoms which occurred in task output, where psychological symptoms remained similar. For instance, cricketers and darts players reported tension in the hand, and subsequently, a feeling of being unable to release the object towards the desired target. Golfers experienced involuntary movements or increased physical tension in the execution of the putting stroke. Similar psychological symptoms consisted of increased self-consciousness, frustration, embarrassment, and a lack of control. It was argued that the physical symptoms presented were synonymous with focal dystonias (Lim et al., 2001). The present study adds support to the previous studies, where it is further argued that the 'yips' are a similar problem independent of sport type. No differences emerged between the 'yips' affected sports on any of the variables which were measured. Furthermore, effect size statistics used to support the 'p' values suggest that the differences between the sports on the measures used were all 'small' (Hopkins, 1997). One of the benefits of this analysis was that it eliminated any possible co-variants which may have existed in the data.

The present study supported the contention that individuals who experience the 'yips' display higher levels of perfectionism, than those who do not suffer from the problem. The effect size was very large in this instance (Hopkins, 1997). These findings share commonalities with recent research examining focal dystonia in musicians (Jabusch & Altenmuller, 2004; Jabusch et al., 2004). Care is warranted as the tool used to measure perfectionism in those studies was not psychometrically validated; it was based upon practitioner experience of dealing with individuals who suffer from the problem. However, the finding is still worthy of discussion and ties in with previous findings

from study 2, and the similarities shown with occupational dystonias throughout the thesis.

In the previous study, it was highlighted that prior to the 'yips' experience, individuals cited significant life events occurring at or around the time the 'yips' developed. Recent research has suggested that significant life events may precede the development of focal dystonias and other types of movement disorder (cf., Baker & Humblestone, 2005; Crimliskl et al., 2006; Kirsch & Wink, 2004; Lees, 2002; Schmidt et al., 1994; Schweinfurth et al., 2002; Thomas et al., 2006). Furthermore, previous research has found that both self-orientated perfectionism and socially prescribed perfectionism are correlated with interpersonal stressful life events. It is important that future research examines the role between perfectionism and the development of physical symptoms, as the mechanisms underpinning this could be due to the negative consequences of perfectionism. Dean et al. (1996) reported a correlation between negative life events as measured by the Life Experiences Survey (LES; Sarason et al., 1978) and socially prescribed perfectionism. Frost and DiBartarlo (2002) suggest the overall critical self-evaluations that are part of perfectionism lead perfectionists to experience anxiety in response to everyday situations that other people do not find stressful. The mechanisms behind the physical disturbances which occur in skill execution are beyond a thorough discussion in this chapter (see section 2.2.2 for detailed review). It has been attributed to dissociation theories and conversion disorders (Baker & Humblestone, 1995). Psychological pain (e.g., the significant life event) is converted to physical symptoms, to act as a defence mechanism, preventing individuals from accessing the memory of the painful event (Baker & Humblestone, 1995). Environmental triggers can then lead to the re-experiencing of the physical sensations but the memory of the event remains unrecalled (Brown, 2004). This would certainly explain the sporadic nature of the 'yips' experience where 'yips' symptoms come and

go. However, care is warranted as future research is needed to support the suggestions made here.

The links between perfectionism and OCD have been well established in the psychological literature (e.g., Frost & DiBartarlo, 2002). It was argued that if individuals display higher levels of OCD than their counterparts, this obsessional nature could potentially operate at three levels in the overall 'yips' experience; the significant life experience; and in the initial and subsequent phases of skill breakdown. As predicted, individuals who experience the 'yips' scored higher on the CM and DA aspects of the FMPS. Frost et al. (1990) found that the CM and DA dimensions of perfectionism were closely related to OCD symptoms. This finding supports research which has examined the 'yips' in the sport of golf (McDaniel et al., 1989; Sachdev, 1992). Furthermore, researchers have shown that those with focal dystonia display more obsessive-compulsive characteristics (Bihari et al. 1992; Brooks et al., 1998; Cavellaro et al., 2002; Kubota et al., 2001; Munhoz et al., 2005; Rothfeld, 1995; Shulze & Stephan, 1987; Toichi et al., 2001; Wenzel et al., 1998). It is possible that the obsessional nature combined with the negative consequences of critical self-evaluations which result from high perfectionism (Frost & DiBartarlo, 2002) may result in the life event (chapter 4) becoming more profound than it needs be. It could be that individuals obsessively think about the negative consequences of the event, resulting in the event becoming deep rooted. Again, care is warranted interpreting this suggestion as the researcher has tried to suggest possible mechanisms which may take place in the 'yips' process based upon the findings which appear here and those which have occurred in the previous chapter. Future research is therefore needed to confirm these suggestions.

A surprising result was that the 'yips' group scored higher on the PS factor than the non-yips group. None of the previous investigations examining OCD have found differences on the PS factor to normal populations (e.g., Frost & Steketee, 1998). A possible explanation for this is that the PS factor has associations with both adaptive and maladaptive trends of perfectionism (Kwawaja & Armstrong, 2005). Its moderate correlation with functional aspects of perfection indicated that setting up high standards and goals; when accompanied by organisation and efficiency, is an adaptive behaviour leading to satisfaction and psychological well-being (Stumpf & Parker, 2000). On the other hand, aspirations in life can be an unpleasant experience if accompanied by uncertainties and an over-critical style (Stumpf & Parker, 2000). Further, the tendency to be critical towards one's self and to indulge in self doubts appeared to be influenced by setting high standards and parental expectations and criticism (Enns & Cox, 2002). The maladaptive aspect of the PS factor may signify why life events are deemed significant and their timing prior to the 'yips' experience as important (Chapter 4). Furthermore, it may pose further questions for movement disorder research which have recently shown life events to occur prior to the development of focal dystonia. Again, future research is needed to confirm how the PS factor interacts with the life event, and also during the first occurrence of the 'yips'.

A further surprising result was the significant difference between organisation for the 'yips' group in comparison to the non-yips group. If anything, it would have been expected that the non-yips group would score more highly on this aspect considering its associations with adaptive perfectionism (Kwawaja & Armstrong, 2005; Stumpf & Parker, 2000). Considering the 'yips' is a form of dysfunctional behaviour, it might be postulated that individuals use this factor in maladaptive way. Future research should examine the role of adaptive and maladaptive perfectionism using appropriate tools such as the Adapative/Maladaptive Perfectionism Scale (AMPS; Rice & Presseur,

2002). Considering the negative impact which the 'yips' has on the individual, it would suggest that future research needs to examine how individuals with the 'yips' use their perfectionist tendencies.

The results of this study support the hypothesis that individuals with the 'yips' will have a greater predisposition for reinvestment than in a matched, non-yips population. This was supported by the large effect size between the two groups (Hopkins, 1997). Reinvestment is the pre-dispositional nature individuals possess which is used to the conscious deployment of explicit, declarative knowledge to control the mechanics of a movement. These findings support the movement disorder research. It has been suggested that those who experience movement disorders are self-conscious about their movements (cf., Grattan et al., 2001). Likewise, Jahanshahi (2000) found that stress and increased self-consciousness increased the severity of dystonia. Grattan et al. (2001) have shown that individuals with stroke were described as highly self-conscious or as 'deep thinkers'. Orrell et al. (2004) suggest that participants suffering from movement disorders tend to become more aware of their mechanics over time. In chapter 4, it was shown that individuals displayed obsessional thoughts when the 'yips' struck. It is possible that the high obsessional nature combined with the predisposition to reinvest may combine to produce the long-term loss of skill which occurs. This is based on the findings from chapter 4 where individuals obsessed over the fact that the 'yips' occurred.

The findings from this study have tied together the initial findings from chapters 3 and 4. They have supported the contention that the 'yips' are a similar problem independent of sport type. Furthermore, it has shown that the 'yips' share close similarities with occupational dystonias. It would appear that a number of factors need to be in place for the 'yips' to occur. First, individuals need to possess the necessary

personality attributes of perfectionism, obsessionalism and reinvestment. It would appear the perfectionism and obsessional aspects would make one more vulnerable to life events which are common, than healthy matched controls. Finally, once the initial 'yip' has occurred, it is argued that the combination of the predisposition to reinvest, combined with the obsessional thinking, causes the 'yips' to develop into the long term problem which develops. Future research is needed to confirm this suggestion.

These findings have applied implications for practitioners working with the problem. Firstly, sport psychologists working in close proximity with their coaches will be able to identify potential 'yippers' through the deployment of personality assessments as used in this investigation. Education sessions which raise the awareness of coaches to the impact which life events can have on performance is of prime importance. If coaches are able to quickly identify the warning signs, then appropriate strategies can be put in place at the time when these significant life events take place. Examples of these events might include an athlete's breakdown in their marriage, the death of a parent or a major life transition such as moving home. These events are only deemed significant based upon the individual's dysfunctional perfectionist profile. In addition, the psychologist can work in close association with the coach to raise awareness of the dangers of obsessional thinking and reinvestment. Whilst pro-active measures can be implemented to assist in preventing the 'yips', future research should look to identify appropriate intervention tools which can help treat individuals who currently have the problem. Some of the recent research has shown CBT models to be partly effective in helping treat the 'yips' only for them to come back (Bawden & Maynard, 2004). Therefore, research may need to look at alternative intervention strategies, focusing specifically on treating the negative impact of the life events which may be at the root of the problem.

CHAPTER 6

6.0 BACKGROUND TO CHAPTER

Upon completion of the interview study in chapter 4, the principal researcher was contacted by a lady by the name of Lynn Francis[2], who reported she was helping 'yips' affected individuals overcome their problem. Lynn had been working with clinical problems for the past 20 years where she was a qualified clinical hypnotherapist. However, over the past 2 years, she had been using a completely novel intervention tool, which she claimed was having 100% success in the individuals she worked with, who had the 'yips'. Initially, the principal investigator refuted this claim only for Lynn to call back a few days later. It was at this point, that a meeting was arranged, whereby her claims were discussed at length between the principal investigator and a further member of the supervisory team. During this meeting, Lynn discussed how she came across the 'yips'. She explained that, one day a golfer called her and asked for an appointment to see her, whereby she helped this golfer to overcome the affliction. It was at this point, that Lynn was encouraged by a golf coach to continue working in this area, as there was no known treatment for this performance problem. Lynn described five anecdotal case studies of her work in golf whereby all of those who had presented had been relieved of their discomfort. She highlighted, that initially, the golfers talked about the involuntary physical disturbances that occurred in their putting stroke and then, how these symptoms had been totally eradicated by working with Lynn, upon using her intervention. She discussed, that in all of the cases she had worked with, which was now well over fifty, that there was an emotional trigger prior to the development of the 'yips' in each case. Contact was made with two of the golfers she had worked with to verify Lynn's claim that they were indeed suffering from the

[2] Lynn Francis can be contacted through the principal investigator.

'yips', and that subsequently, there symptoms had been resolved upon working with her. Considering the link between her anecdotal reports, and the data that was emerging in the thesis (chapter 4), it was considered appropriate to follow up her claims. The supervisory team met and discussed the situation and decided that it would be beneficial to the research area if this clinician's methods could be rigourously tested and further verified. It was felt that the practitioner had presented sufficient 'anecdotal' evidence to suggest her clients had to some degree recovered their golfing performance subsequent to her intervention. It was therefore agreed that some testing of her methods should be undertaken. At this initial stage the purpose was not to test the intervention process per se, but rather to test if it was successful. If it were found that the clients progressed and recovered performance, a foundation may therefore be established upon which future investigations could build. The method she uses will be explained more fully in the following sections.

6.01 (STUDY 4) USING A MERIDIAN BASED INTERVENTION AS A CASE STUDY FOR TREATING THE 'YIPS'

6.1 INTRODUCTION

In study 1, it was suggested that the 'yips' are a similar problem independent of sport type, in that they are manifested in physical symptoms which disturb the skill output, and psychological symptoms which are consistent across sport. The findings from study 2 suggested that significant life events may take place prior to the development of the 'yips' experience in each of the sports investigated. Although caution was noted due to the sampling procedure by which the grounded theory process dictates (Strauss & Corbin, 1990). In study 3, it was shown that individuals with the 'yips' display obsessional, perfectionist and reinvestment personality types. A number of similarities have emerged in studies 1 - 3 with those in the current movement disorder research. Firstly, individuals with focal dystonia experience involuntary movements in skill execution (Lim et al., 2001). Secondly, recent evidence is starting to show similar patterns to the results found in study 2 here, in that significant life events have taken place prior to the development of the movement disorder (Thomas et al., 2006; Schmidt et al., 1994; Schweinfurth et al., 2002). Recent evidence offers a tentative explanation to the links between the physical symptoms experienced by those who suffer from movement disorders and the prevalence of significant life events prior to their development. The mechanisms behind the physical disturbances which occur in skill execution are beyond a thorough discussion in this chapter (see section 2.3.2 for detailed review). The disturbances have been attributed to dissociation theories and conversion disorders (Baker & Humblestone, 2005). Psychological pain (e.g., the significant life event) is converted to physical symptoms, to act as a defence mechanism, preventing individuals from accessing the memory of the painful event

(Baker & Humblestone, 2005). Environmental triggers can then lead to the re-experiencing of the physical sensations but the memory of the event remains unrecalled (Brown, 2004). The aim of this investigation was to explore the role of treating significant life events which occurred prior to the development of the 'yips' and how this impacted on performance. The study looked to utilise a novel form of intervention, as it was deemed this would open up more avenues for future research than to simply use existing intervention strategies which have usually been less than successful in countering the 'yips'.

Previous research examining the 'yips' has failed to explore the relationship between possible underlying causes and the symptoms which emerge. Previous research has suggested that focal dystonia occurs as a result of overuse of the motor programme (Smith et al., 2000; 2003). Therefore, the more one practises, the more one competes, the more one is susceptible to developing the problem. Whilst a technical change may be successful, the evidence cited in study 2 suggested that the 'yips' have the potential to come back at some stage. Indeed, applied experience of dealing with individuals who have the problem would support the notion that the 'yips' often return.

If the 'yips' are a psychogenically based problem in the form of trauma, masked by physical symptoms, then it would be wise to examine treatment protocols which could be readily applied by sport psychology practitioners. Numerous treatment protocols are available for the treatment of trauma. These include psychodynamic reprocessing, behavioural therapy, cognitive psychotherapy, rapid-eye movement desensitisation and preventative type interventions (McFarlane & Yehmuda, 2000). Of those interventions, there is currently greatest support for Cognitive Behavioural Therapy (CBT; Jaberghaderi, Greenwald, Rubin, Zand & Dolatabi, 2004). The primary aim of such specialised therapy is to allow the individual to quell the distress and arousal

associated with the recurrent and involuntary reminders of the trauma and to minimise the accompanying behavioural and affective symptoms. In exposure therapy, the patient is confronted with the feared memory or triggers using a variety of techniques (Amir, Stafford, Freshman & Foa, 1998; Keane, Fairbank, Cadell & Zimering, 1989). Anxiety management techniques train the patients in a range of skills to control the anxiety of daily life (McFarlane & Yehuda, 2000). The main issue with CBT programmes is the length, and amount of time the client must give up, in order for the intervention to be learnt and the problems associated with only intermittent success (Jaberghaderi et al., 2004).

Recently, a new group of behavioural interventions, known as 'meridian-based therapies' or 'energy psychology' methods, have been proposed as treatments for anxiety disorders. These therapies are commonly known as speed therapies in that they produce dramatic results in a short time period when compared with conventional techniques such as counselling, CBT, or psychodynamic reprocessing (Wells, Polgase, Andrews, Carrington, & Baker, 2003). These are based on clinical reports which indicate the rapid improvement in negative emotional states (Callaghan, 2001a; Craig, 1995; Figley & Carbonell, 1995; Gallo, 1999). They are considered to work in the same energy meridian system that is claimed as the basis for acupuncture.

Acupuncture, from which these techniques were derived, has been extensively studied with hundreds of research reports published (Stux & Pomeranx, 1995). While the majority of studies have focused upon the analgesic properties (e.g., Levine, Gormley & Fields, 1976), or its use in treating physiological conditions, needle acupuncture is widely recognised by practitioners and researchers as a potent means of inducing a sense of calm and tranquillity. In clinical practice, needle acupuncture is frequently used as either a sedative or anti-anxiety agent depending upon the length of time the

needles remain in place (Apostolopoulos & Karavi, 1996; Lo & Chung, 1979; Roccia & Rogora, 1976). Evidence showing a marked difference between acupuncture points and non-acupuncture points in terms of electrical resistance of the skin (Bergsmann & Wooley-Hart, 1973; Cho, 1998; Cho & Chung, 1994; Liboff, 1997; Syldona & Rein, 1999) is, in turn, consistent with the notion that the meridian-based therapies may derive their special therapeutic properties from stimulating specific acupoints (Callaghan, 1985; Gallo, 1999).

Due to the invasive nature of needle acupuncture and the level of expertise required to administer it, this intervention does not lend itself readily to the treatment of emotional disorders. By contrast, the meridian-based therapies are non-invasive and easily administered by those untrained in acupuncture. They are, therefore, potentially appropriate for treating a wide variety of emotional disorders (Wells et al., 2003).

The two leading meridian-based therapies are Thought Field Therapy (TFT; Callaghan, 1985) and Emotional Freedom Techniques (EFT; Craig, 1995; 1999). TFT was developed by Roger Callaghan from his study of the energy meridian system of acupuncture, which he applied to the treatment of specific emotional problems. This approach involves the light tapping of meridian points in a protocol which uses specific sequences (i.e., algorithms), each of which addresses a specific emotional problem or category of problems.

While its followers claim to have applied TFT with great success (Callaghan, 2001a), the few published studies on TFT (Bray & Folkes, 1999; Callaghan, 2001a, 2001b, 2001c; Carbonell, 1997; Figley & Carbonell, 1995; Johnson, Shala, Sejdijaj, Odell, & Dabishevci, 2001; Pignotti & Steinberg, 2001; Sakai, Paperny, Mathews, Tanida, Boyd & Simons, 2001) all suffer from a number of methodological weaknesses. The most prominent and consistent problem was the lack of a comparison control group.

Carbonell (1997) utilised a control group, however only a brief preliminary report of this study was published, therefore it was difficult to evaluate the effectiveness of the treatment. The other studies suffered from a range of methodological issues which included a lack of experimental controls, sampling biases, and an over-reliance on subjective measures (Wells et al., 2003). EFT is an offshoot of the TFT method. Unlike the latter, it is more widely used, and uses a single 'all-purpose' algorithm to treat every emotional problem and therefore does not require any diagnostic procedures. It is easy to use, and offers the 'yips' affected individual with the opportunity to take something tangible into the environment if in need of help. EFT also has a detailed manual, which allows for well-controlled research. During the process of EFT, the individual taps on each of the acupoints in sequence while remaining 'tuned into' the emotional problem by repeating a phrase such as 'this anxiety'. Over time, the negative emotional intensity levels decrease, thereby relieving the patient of their emotional distress (Wells et al., 2003).

EFT is believed to be extremely beneficial for the treatment of psychological problems which are manifested in physical forms. A huge number of anecdotal cases (www.emofree.com) have been reported where physical issues have subsided, immediately after dealing with underlying emotional issues believed to cause the problem. Indeed, one article in particular stands out whereby it was claimed a lady with essential tremor was successfully treated using EFT (http://www.emofree.com/Fear/essentialtremor.htm, visited August 2005). Essential tremor is a movement disorder similar to focal dystonia which results in a shakiness in the hands when performing a task (Lim et al., 2001). In this particular case, the client suffered when carrying a glass of water in public. At the root cause of the problem, the article described how the therapist unearthed a significant event which was believed to be at the root of the problem. The client's mother was extremely judgemental about

her personal appearance. The therapist applied the EFT intervention to the client on this issue, and other aspects which emerged. It was reported that the client no longer suffered from the movement disorder after the EFT intervention. Whilst this anecdotal case is intuitively appealing, one must be careful interpreting this finding, as the articles placed at this website are not peer reviewed in any way, and are subject to the bias of the website owner.

Despite clinical anecdotal evidence which suggests EFT can be effective in reducing anxiety (Carrington & Craig, 2000; Craig, 1999; Hardistry, 1999; Hartmann-Kent, 1999a, 1999b), there have only been a few studies exploring its clinical potential. Swingle, Pulos and Swingle (2001) conducted a pilot study on the effects of EFT on auto accident victims whom were suffering from Post Traumatic Stress Disorder (PTSD). These researchers reported significant changes in these patients' brainwaves and self reported symptoms of stress 3 months after they had received two 1 hour sessions of EFT treatment. In another study, Swingle (2001) found significant reductions in seizure frequency in children diagnosed with epilepsy after exposure to 2 weeks of daily in-home EFT treatment. Further clinical improvements were noted in the children's EEG readings. However, similar to the problems noted earlier in the studies researching TFT, these studies failed to employ the use of appropriate control comparison groups. Furthermore, both studies suffered from a small sample size; therefore, these findings are not generaliseable.

More recently, there has been a steady increase in the number of studies utilising EFT as a means for treating underlying emotional disorders. One study examined the effectiveness of EFT as an intervention tool for treating a specific animal phobia (Wells et al., 2003). The study compared EFT to a specific form of diaphragmatic breathing (DB) designed to include verbal elements similar to those of EFT.

Dependent measures included a Behavioural Approach Task (BAT) which was designed to assess the participant's level of avoidance of the feared animal. A modified version of the Brief Standard Self-Rating for Phobic Patients (Marks & Matthews, 1979) was used to measure phobic symptoms and change. In addition to this, two Subjective Units of Distress (SUDS; Wolpe, 1958) measures were used. The SUDS measure consists of an 11 point scale ranging from 0 (no distress) to 10 (intense distress). Participants were asked to rate the degree of discomfort they felt. In this instance, participants were required to recall their SUDS score when imagining the animal, and also during BAT. The final measure was pulse rate. Participants were randomly assigned to be treated individually for 30 minutes with EFT (n = 19) or a comparison condition, DB (n = 17). In line with their experimental prediction, Wells et al. (2003) illustrated EFT participants improved significantly more from pre to post-test during the original intervention than did those in the DB condition on four of the fives measures employed. In addition to this, the effect of EFT appeared to be long lasting in terms of avoidance behaviour. In the follow-up test (9 months), a substantial improvement was shown compared to the pre-test. However, improvements also occurred within the DB group from pre to post-test. Although differences emerged between the EFT and DB conditions, it is possible these results occurred as a result of a placebo or regression to the mean.

Baker and Siegel (2001) overcame the problems of the Wells et al. (2003) study using a replication of the study design but with two different comparison conditions: a supportive interview and a no-intervention condition. For EFT, they found a similar reduction in fear of small animals to that found for EFT in the Wells et al. (2003) study. Baker and Siegel (2001) found no change whatsoever from pre-test to post-test in either their no-intervention condition or the supportive interview. Wells et al.

(2003, p.960) argued that due to the similar nature of the Baker and Siegel (2001) study in relation to their study:

> "EFT and DB both produce a true effect due to their common feature of rapid relaxation, and this shared feature led both conditions to produce reduction in fear when experimentally studied, presumably by a desensitisation process. However, since EFT produced significantly greater reduction in fear than did DB, it would seem that there must be something additional accruing with the EFT condition."

With EFT treatment still in its infancy, a number of possible explanations were proposed for the results by the Wells group. In light of the fact that EFT is derived from acupuncture theory, they stated that EFT may have obtained its results through intervening in the body's so-called energy system (Wells et al., 2003). One of the two primary differences between the conditions used in this study was that the EFT participants tapped on the meridian end points whilst focusing on their feared object, while those in the DB condition did not.

A second explanation which was provided by the group suggested that EFT may constitute a novel form of desensitisation. Based on their clinical experience, the authors stated that patients often reported feeling very relaxed after tapping on the meridian points. Wells et al. (2003) pointed out that since EFT requires focusing of attention upon a feared object whilst tapping, this combination of repeated focusing while one is relaxed may desensitise them to the effects of anxiety.

A recent study looked at the use of EFT as an intervention for trauma based issues (Flint, Lammers & Mitnick, 2006). Flint et al. (2006) described the use of EFT with two case studies. In the first case, a therapist was asked to conduct a Critical Incident

Stress Debriefing (CISD) for 35 members of an organisation whom were feeling distressed as an employee had died. During this time, the therapist indicated that if any of the employees were still feeling emotional distress at the end of CISD and that EFT could be used to provide a quick method of relaxation and would likely diminish the remaining intensity of their distress. Six participants asked for additional individual EFT assistance and found rapid relief by using this method. Prior to undertaking the EFT treatment, these participants were reportedly still feeling intense about the death during the formal CISD, but after the tapping of EFT, they had markedly reduced their SUDS to between 2 and 0. In essence, this means that the amount of emotional distress was at a minimal amount compared with at the start of the intervention. Flint et al. (2006) reported that EFT was, for them, an appropriate intervention for more completely reducing and eliminating traumatic memories after a formal CISD session.

In case 2, the second author treated a client who was traumatised from an accident that occurred while on a moving train. While the crew tried to connect a line of railway cars to a single stationary car at the end of the track, a co-worker was riding on the last moving car. The client was receiving instructions from his co-worker by means of a short wave radio when he suddenly heard, via the radio, the voice of his colleague screaming: 'They got me!' The car on which his colleague was riding had collided with the stationary car, causing his co-worker to lose his foot. The client was still experiencing significant guilt about his colleague's injury. After processing the trauma with EFT, the client's SUD score dropped to zero from an eight after only a few treatments. Following treatment, the client's guilt was also considerably reduced and he could see that it was his colleague, not he, who had made the mistake. Therefore, the client's perceptions of the event changed as a result of the intervention. In essence, the emotion had been removed from the event allowing the client to view the incident with more perspective than with the emotion attached to it.

Whilst the two cases provided here are interesting in the fact that they tentatively show EFT to work, they offer very little in terms of hard evidence. The use of SUDS as a dependent variable is flawed as it is susceptible to participant bias (Flint et al., 2006). The individual receiving the treatment could simply state they were feeling better, when in actual fact they were not. To assess the effectiveness of EFT as an intervention in treating the potential underlying causes of the 'yips', more appropriate dependent variables are required which are specific to the task at hand. Thelwell and Maynard (2002) suggest that it is important to assess a range of variables to help add validity and reliability to the findings in specific settings of applied studies. Therefore, an important consideration in designing the study will be the careful consideration of the range of dependent variables to be used. Considering the 'yips' is a performance problem, it is necessary to include measures which specifically focus on improvements in performance from pre to post test.

The purpose of this study was to explore whether treating emotional events prior to the 'yips' occurring would result in a decrease in 'yips' symptoms using a single case study type approach. It is argued that by treating these events, and the associated emotions which are connected with them, that the symptoms of the 'yips' (physical) will subside, enabling the 'yips' affected person to resume their skill without interruption to the skill in the form of involuntary disturbances. This study will not attempt to find out whether EFT is a preferred mode of therapy for the treatment of underlying emotional disorders. To do this, we would have to include in our design the best available current procedure for such treatment, that being cognitive behavioural therapy. The study will however address whether EFT reduces the symptoms of the 'yips' experience, by treating potential underlying emotional events. It was argued that testing this new intervention would add far more to the research than simply to conduct another study using traditional methods. By utilising a new

approach, further lines of enquiry can then be sought, where future comparisons can then be made between EFT, and other more rigorously tested intervention tools.

6.2 METHOD

6.2.1 Participants

Prior to taking part in the treatment stage, institutional ethics approval was granted (Appendix 11). Participants were selected for inclusion in the study using the following criteria. Participants had to be: (a) over 18 years of age, (b) have symptoms of the 'yips' in golf, darts or cricket, (c) not be currently receiving any treatment (physical or psychological) for their 'yips'. Two participants agreed to take part in the study who also had taken part in study 1. It is important to note for the reader's benefit, that participant A took part in phase 1 of the study and participant B took part in phase 2.

Participant A: A 32 year old former International cricketer took part in phase 1 of the study. The participant had played First Class cricket since 1993 and had suffered from the 'yips' for 6 years, which resulted in his retirement from First Class cricket. The problem had also resulted in the participant no longer bowling in matches for his local club team. In the initial interview with this participant, it appeared that the cricketer had experienced the 'yips' in a game leading up to his first International appearance. Although he did not attribute this initial experience as a 'yips' experience, the thoughts, feelings and behaviours he described were consistent with those described in study 2. The participant repeatedly talked about how he hoped that experience would not repeat on an upcoming International Tour and how he had sleepless nights replaying the event over and over again in his mind. It would appear

that the event took on significance due to his stature as an International performer, and the timing of this performance.

Participant B: A 49 year old golfer who had a handicap of 4 previous to developing the 'yips' took part in phase 2 of the study. The golfer suffered from an involuntary disturbance which occurred in the radial area of the left arm, when putting with a right-handed posture. The disturbance occurred on impact with the ball. It was highlighted in study 2 there was a potential link between the first occurrence of the 'yips' in this participant, and a significant event which occurred. The participant experienced the 'yips' for the first time on the 18th green at his local club. This was his first game since the winter break. Prior to the winter break, at an AGM, in the club house overlooking the 18th green, he was humiliated in front of 150 people, when putting a point of view across, he was told to shut up and sit down. He remarked in his interview that all he wanted was to be understood as he didn't get much understanding from his father (at which point tears emerged during the interview). The 'yips' first occurred on the 18th green of the club where that event had taken place 6 months previous. Considering the nature of the findings from study 2, it could be that the 18th green provided the environmental trigger for that event to be replayed (cf., Grand, 2001).

6.2.2 The Treatment Method

The EFT treatment protocol followed the EFT 'Basic Recipe' outlined by its developer (Craig, 1995, 1999), which consists of the client tapping on a series of acupuncture points on his body while remaining 'tuned into' the problem (e.g., "this negative emotion," "this intense distress" etc.) as each acu-point is contacted. A round of EFT consists of tapping a minimum of seven times in a prescribed sequence, at the end

points of the 12 traditional acupuncture meridians (Five positioned on the head, two positioned on the upper trunk of the body, and the remaining five on the hand). A self-accepting statement (e.g., "Even though I have this intense emotional distress over that event"), combined with rubbing on a reflex point (SS on figure 6.1) in the upper chest known as the "neurolymphatic reflex point" (Callaghan, 1985) is used prior to each sequence of tapping in EFT. The therapist checks the SUDS level at the outset and following each round of the Basic Recipe. The treatment continues until all aspects or separate issues of the problem are dealt with, as related issues as well as the original identified stimulus can sometimes trigger the response.

6.2.3 The Therapist

The therapist was a 40 year old woman who has been treating clinical problems for the past 20 years. She is a qualified clinical hypnotherapist as well as a certified practitioner in Emotional Freedom Techniques and possesses her own Professional Indemnity cover. In addition to this, she has 2 years experience of working with golfers who have experienced the 'yips' and is familiar with the concept of treating potential underlying emotional causes. It was deemed inappropriate for the principal investigator to administer the intervention based upon a lack of experience working with clinical issues.

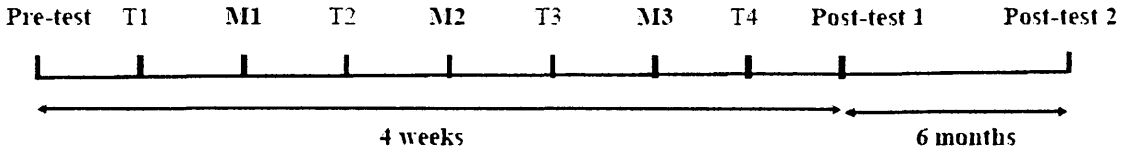
6.2.4 Design

The design of the study was split into two phases (i.e., phase 1 and phase 2). The rationale behind this was to assess the effectiveness of the intervention. If the intervention was deemed successful in phase 1, then phase 2 would commence. Likewise, if the intervention was unsuccessful, the intervention would be halted.

Phase 1. In phase 1, a simple pre and post interview took place, to assess the effectiveness of the intervention. Pre-intervention, the participant gave details as to how the 'yips' effected performance and the resultant feelings that were experienced. Post-intervention the participant was asked whether any improvements had taken place, and the differences between his thoughts, feelings and behaviours post intervention. The participant also talked about the significance of the event highlighted at the outset and the effects of the intervention upon this. The participant took part in 4 sessions of EFT lasting 2 hours each. The follow up interview was designed to distinguish the effectiveness of the intervention, and how performances had been since the treatments.

Phase 2. A secondary phase was conducted to test the intervention using controlled laboratory conditions. This single subject design (Kazdin, 2003) consisted of a baseline measurement, 4 sessions of EFT lasting 2 hours each, interspersed with 4 data collections (figure 6.2). In addition, a 6 month post-data collection was included so that the longevity of the intervention's effectiveness could be assessed. The golfer was required to make 10 putts from 2 feet, 4 feet and 6 feet (i.e., total of 30 putts) for each data collection point (i.e., pre-test, measure 1, measure 2, measure 3, measure 4 and a 6 month follow up) which totalled 180 putts across all data points (figure 6.3). Prior to each putt, the golfer was required to make a successful chip into an area of 1 metre radius (i.e., a target area with a radius of 1 metre around the cup). This was to ensure ecological validity in the laboratory, and also, to ensure learning effects were minimised intra-trial. A manipulation check was used at each stage of the intervention to check the therapist was indeed treating the underlying emotional causes identified at the outset. To add validity to the manipulation check, the researcher gained a practitioner qualification in EFT, so that a deeper understanding could be gained of the mechanisms underpinning EFT. Post-intervention the participant was asked whether

Figure 6.2 – Summary of phase 2



Key:

Pre-Test: Baseline data taken prior to the intervention

T1, T2, T3 and T4: EFT treatment sessions interspersed 7 days apart

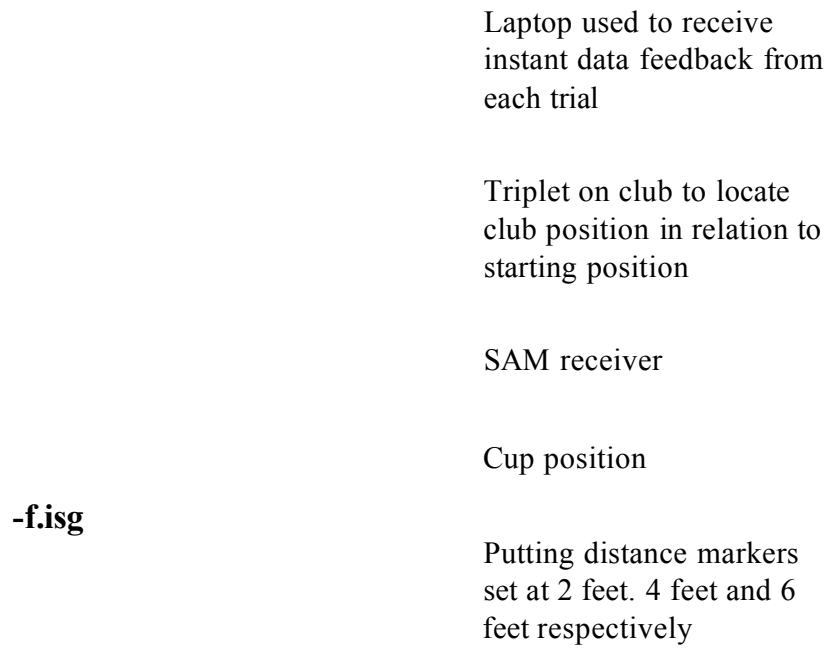
M1, M2, M3 and M4: Data collection points interspersed 7 days apart

Post test 1: Data collection 1 week after final EFT treatment session

Post test 2: Data collection 6 months after final EFT treatment session

Nb: phase 1 finished after post test 1.

Figure 6.3 Experimental set up for phase 2



any improvements had taken place, and the differences between his thoughts, feelings and behaviours post intervention. The participant also talked about the significance of the event highlighted at the outset and the effects of the intervention upon this. The participant took part in 4 sessions of EFT lasting 2 hours each. The follow up interview was designed to distinguish the effectiveness of the intervention, and how performances had been since the treatments.

Social Validation. Social validation questionnaires were administered in phase 1 and 2. This process attempted to assess participant reactions to treatment procedures and experimental outcomes (Appendix 12; Pates, Maynard, & Westbury, 2001). The social validation was designed to provide information concerning the effectiveness of the intervention via the following questions: (a) "How frequently did the 'yips' occur today?" with responses ranging from 1 (not at all) to 7 (all the time); and (b) "How severe were the symptoms you experienced today?" with responses ranging from 1 (not severe at all) to 7 (extremely severe). The rationale behind the inclusion of this process was to assess whether any observed changes which occurred during the intervention coincided with improved performance for the participants, hence preliminarily investigating ecological validity. Social validation data was obtained in the participant's natural performance environments (i.e., playing cricket/golf); prior to treatments starting, and in between each treatment session, totalling six data collections.

6.2.5 Dependent Variables – Phase 2

Success Rate: The success rate was determined via a simple scoring system which outlined a number of points relative to the accuracy of the putting stroke (3 points = ball going into the middle of the hole; 2 points = ball going into the hole after

hitting the edge first; 1 point = ball missing the hole after hitting the edge first; 0 points = complete miss).

Visual Inspection Data. A simple coding system was used to determine the prevalence of the 'yips' in the putting stroke (0 = no 'yips'; 1 = 'yips' were prevalent). Visual inspection recommendations by Martin and Pear (2003) and Hrycaiko and Martin (1996) were adhered to, to establish the occurrence of any experimental effects. These included: (a) crossover of data points between pre-intervention and post-intervention phases, where the lack of overlapping data points supports the effectiveness of the intervention, (b) immediacy of an effect following intervention and (c) the size of an effect after intervention. The final recommendation could not be replicated in the present investigation as this required a multiple-baseline design to assess the consistency of findings across participants.

SAM Motion Analysis Data. For data acquisition of the putting movements in the laboratory, the SAM Putt Lab three dimensional ultra sonic measurement system was utilised (Science and Motion GmbH, Munich) at 2 feet, 4 feet and 6 feet from the 'hole' respectively. The system contains a marker triplet with three small ultra-sonic markers which are clipped onto the club shaft (see figure 6.3). The position data of the movement paths are stored on a computer and from these position data, face angles, face rotation, path direction, impact spot, velocity and acceleration signals and other information are calculated for further kinematic analysis. For the purpose of this investigation, velocity of rotation data was analysed as this indicates the degree of rotation of the club head at impact with the ball. After an in depth analysis of the data through specially created software the movement data are presented in graphical reports (Appendix 13). These reports supply detailed information on movement competences and deficits. The SAM Putt Lab system is accurate to within 1 degree

(Science and Motion GmbH, Munich). Prior to interpreting the data, the principal investigator attended a Science and Motion Conference, held at Sheffield Hallam University, so that correct interpretation of the data could be made.

6.3 RESULTS

6.3.1 Primary phase

The study was administered in two phases, with the second phase being conducted as a result of a successful outcome in the primary phase. In phase 1, the participant was interviewed prior to the intervention. In the interview, the participant gave details as to how the 'yips' affected performance (Appendix 14). In addition, the participant gave information as to how severe and frequent the symptoms of the 'yips' were in games participated in. The participant gave details as to how the 'yips' affected performance and the resultant feelings experienced. Participant A (cricketer) stated:

> "It's sort of like a hesitation just as you let go of the ball. There is a sort of jerky hesitant feeling. I can bowl three or four overs no problem at all and then I bowl one bad ball and that is it. One bad ball and that is it, everything comes flooding back, and then it's just a rush to get through the 6 balls. You control the game as a bowler don't you? So that was the big thing for me, just getting through the over. Just to get through 5 balls as little as ever. That's the core the way I see it. It is certainly the case in one day cricket. Obviously there is an element of embarrassing yourself but when it's out it wasn't even embarrassing because people knew I was struggling...The 6 balls is the thing...to get through it. It's horrendous. I don't think at the start of the over. I won't bowl a wide 5th or 6th ball because I know I have only got 2 to

get through. I can remember the feeling now. I get to ball 3 and it would be like, oh, I'm on my way in here, I'm home free. Even if I bowl a wide I have only got a couple to get through. But that was every single over. It is so embarrassing which speaks for itself. The worst I have ever felt. It was just embarrassing which the worst possible feeling in sport is. It is one thing failing, but it is another feeling embarrassed about it. It is just as low as it gets".

Prior to taking part in the intervention (figure 6.4), social validation data suggested that the participant thought the severity of the 'yips' symptoms was 'very severe'. In addition, he stated these symptoms were evident 'all of the time'. Upon completing the intervention, the participant also reported the frequency and severity of the 'yips' symptoms had reduced when bowling. When asked how severe the symptoms were, he stated they were 'not severe at all'. In addition, he stated the frequency of which 'yips' symptoms developed were 'not at all'.

Upon completing the intervention, the participant was contacted again to assess his experiences since the intervention. The full interview transcript is located in Appendix 15. The interview tentatively suggests some improvements in the participant's thoughts, feelings and behaviours. For instance, when asked how he felt since he returned to bowling he stated:

"I'm not anxious now, I'm not nervous, I'm just like, oh well, if it happens it happens. It's all not quite as bad as what it used to be. It all doesn't seem as bad. I'm still a bit edgy about the whole thing, but I spoke to the therapist about it the other day and it is just a case of convincing myself. Every time I bowl now I am taking that little step further".

Figure 6.4 - Frequency and severity of the 'yips' symptoms playing cricket

The participant indicated that he truly believed that the practitioner had 'shifted something'. He indicated that 'it had certainly made a difference' and there were situations in which now he wants to bowl, where previously he didn't. He talked in particular about two games where he had bowled well, and that he was now looking forward to bowling in the future. The participant also suggested that his perceptions had changed when he bowled a ball that he previously considered to be a 'yip'. He stated:

> "I bowled a couple of 'yipped' deliveries about two weeks ago in a league game. I just dragged them down and they were wide. I definitely 'yipped' up a bit which I don't mind. But it was the way I reacted after it, the way I was straight back on it…I don't care anymore…It's just that it is not going to hit me as hard as what it did before. I'm not going to react to it. I know that. I often said I wished I had reacted to it a little bit different when it first happened. I can use this as a second chance".

When asked how he was bowling now in comparison to before the 'yips' he suggested that he wasn't at the same level as yet, however he did state:

> "After this last weekend, I bowled it and I bowled it properly…long run up, follow through, everything was fine. I just feel I need a few more games, a) to get my body right because I did struggle physically to get through it, not so much fitness, just niggles and everything like that and b) to just get a few games under my belt because I know fine well, once I have got a few games under my belt it will go nicely. I can just genuinely feel the difference".

When talking about the significant event highlighted at the outset he stated:

> "I don't think it helped. I don't think it helped at all. I just think it left something there which contributed to it a lot. That played a big part in it, it really did. It was partly the fact that I am capable of doing that. I had it in me to do that. And the worrying thing was I couldn't control it. The thought of s*** when is it coming, to get through 4 years of First Class cricket with it. It wasn't very pleasant. It certainly didn't help that is for sure".

Interestingly, the participant recalled that on two occasions he 'yipped' up a little bit, but he was reacting to the situation in a completely different way to previous occasions. Previously, he recalled he would 'over analyse' the situation where he stated one bad ball would trigger the experience off again. Now, however he was thinking differently. He stated:

> "I know how I react and I knew fine well that I didn't react to it like I used to react to it. It's just the bottom line was...in fact to be quite honest with you I don't really care that much. I don't care that much if it goes wrong. I just don't believe it will go wrong. I don't mean I don't care. It's just that it is not going to hit me as hard as what it did before. I'm not going to react to it. I know that. I often said to people I wished I had reacted to it a little bit different when it first happened. I can use this as a second chance".

6.3.2 Secondary phase

Figure 6.5 illustrates how prevalent the 'yips' were visually to the naked eye of the principal investigator. Figure 6.6 illustrates the participant's putting success at each of

Figure 6.5 - Visual physical symptoms of the 'yips' as displayed by the golf participant as reported by the principal investigator

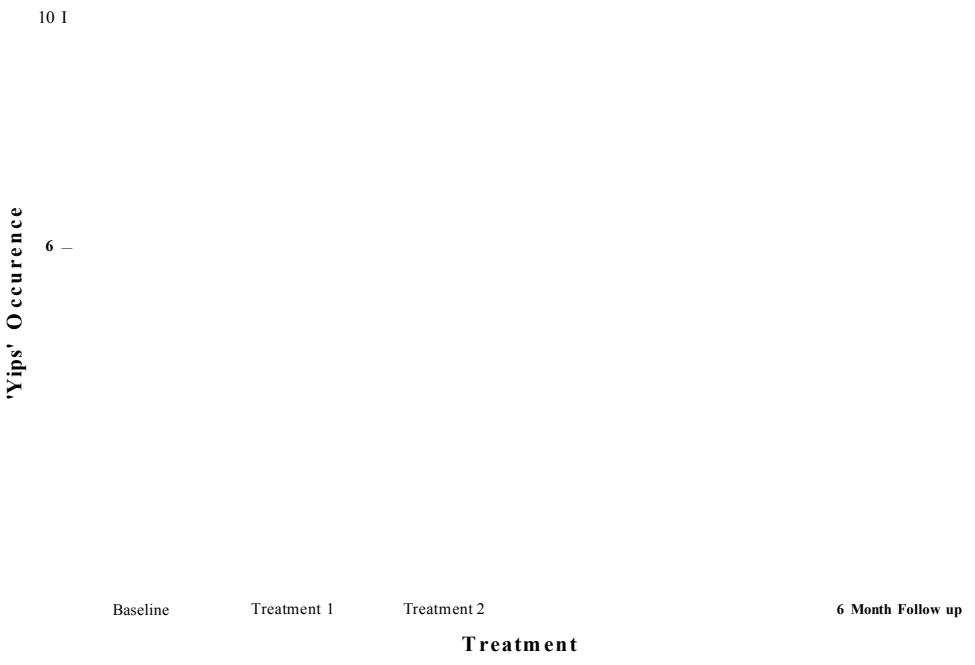


Figure 6.6 - Putting success rate in relation to treatment

the distances measured at each data collection point. The higher the score, the more successful the putt was under these conditions, as the participant received more points for a putt which entered cleanly into the cup. Figures 6.7 – 6.9 illustrate graphical reports produced by the SAM Putt Lab (Appendix 13; Science and Motion GmbH, Munich). The reports illustrate rotation data from backswing through to forward swing (i.e., rotation). Furthermore, they illustrate the amount of rotation in degrees per second (i.e., velocity of rotation) through the motion of the golf putt, where the black dots on the reports signify ball contact.

The general patterns of the results indicates that as each treatment is introduced, the 'yips' symptoms would appear to subside. At baseline, visual occurrence of the 'yips' prevalence is high. This coincides with low levels of putting performance in comparison with later tests. However, by the end of the fourth session of EFT, visual occurrence of the 'yips' has subsided. In addition, putting performance has increased. Furthermore, trial to trial variability has decreased and the lines on figures 6.7 – 6.9 (i.e., treatment 4 and 6 month follow up) illustrate a smooth putting action, not the jerky movement observed at the baselines measurement. In addition, this would appear to be retained at 6 months post-intervention suggesting a positive long-term benefit of the treatment.

This combination of factors (i.e., visual occurrence of the 'yips', poor performance, sharp peaks and troths in velocity of rotation data) may suggest the involuntary disturbance is causing the jerky movement of the club head at impact with the ball. After the 1st treatment of EFT, an immediate improvement can be seen in the pattern of variability present as the lines start to smooth. This improvement seems to coincide with a decrease in visual occurrence of the 'yips' (figure 6.5) and an increase in putting success (figure 6.6). After the fourth session of EFT, it would appear that all

Figure 6.7 - Rotation and velocity of rotation data for 2 foot putts

Figure 6.8 - Rotation and velocity of rotation data for 4 foot putts

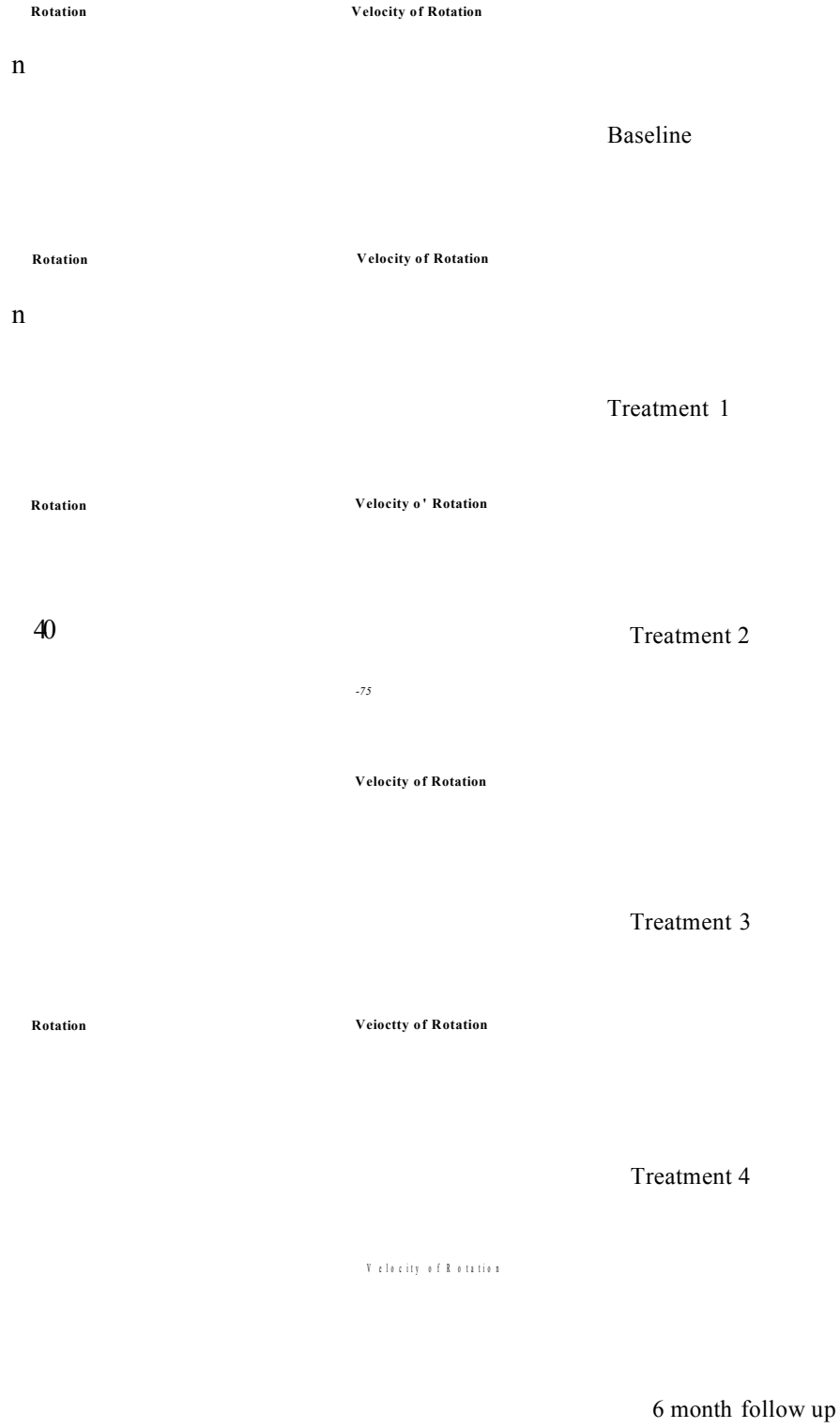
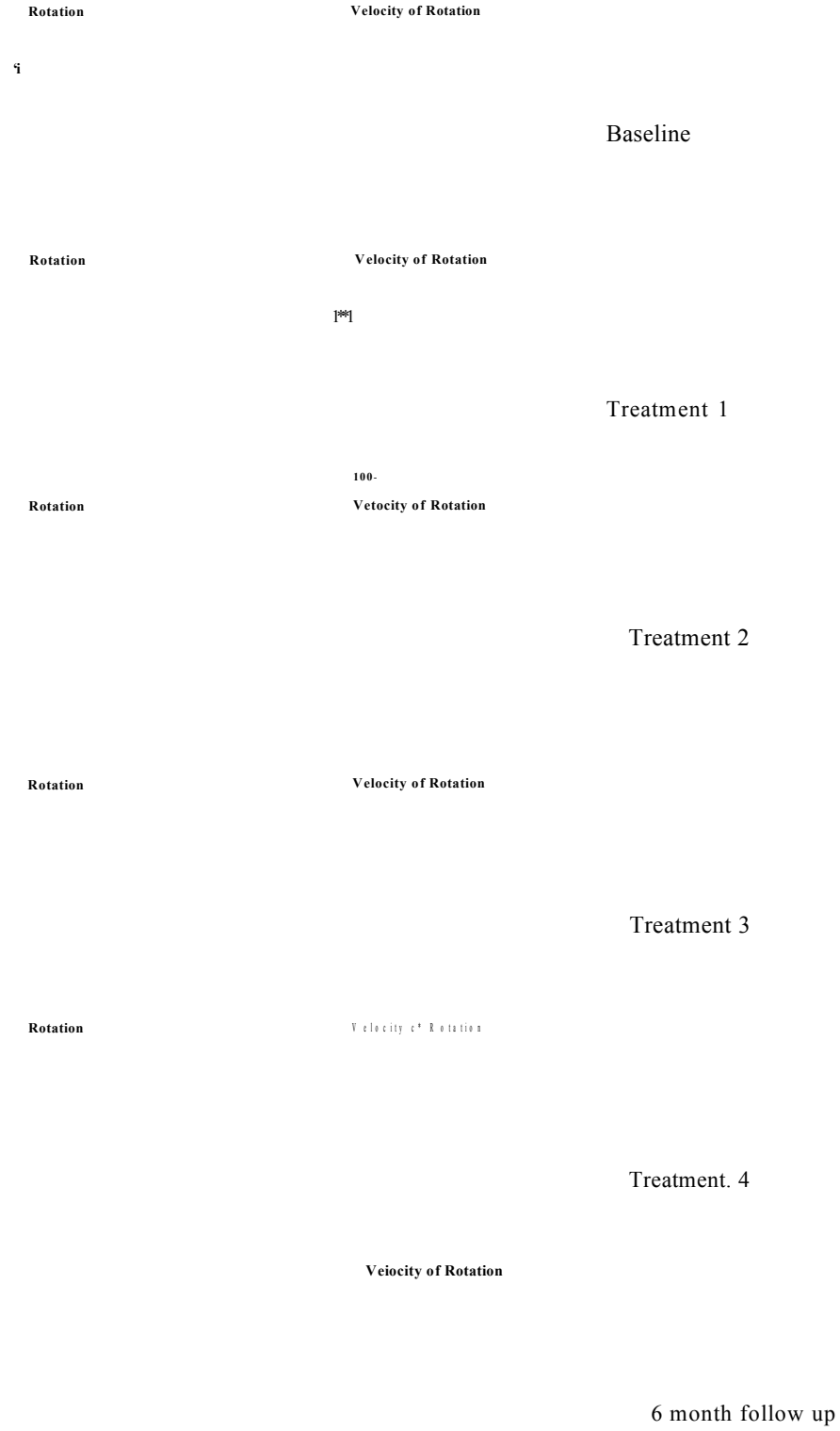


Figure 6.9 - Rotation and velocity of rotation data for 6 foot putts



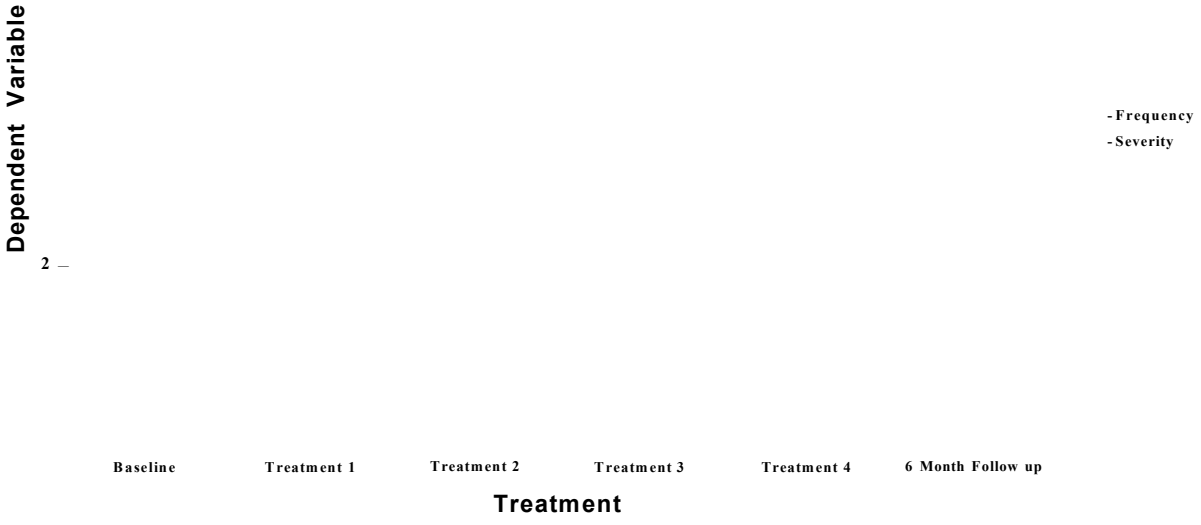
remaining symptoms of the 'yips' have subsided. The velocity of rotation data illustrates the lines are close together and smooth, which is a characteristic of a smooth putting stroke (Science and Motion GmbH, Munich). Furthermore, there is no evidence of the 'yips' visually. There is also an improvement in putting success after the fourth intervention. These improvements would appear to be long-term. At 6 months follow-up, similar trends in the data can be observed to the data presented after the fourth session of EFT.

6.3.3 Self Report Data

The data from the golf course would appear to add support to the findings illustrated in the laboratory. Figure 6.10 illustrates the participant's self report scores on the golf course. Prior to completing the data the participant reported: "I have suffered from the 'yips' since the end of the 1999 season, when during a match play singles knockout semi-final competition, I missed about 6 very short putts due to what I can only describe as an electric shock in my left forearm. This caused the putter head to move involuntarily leading to the putt being hopelessly missed".

The participant was asked the rate the severity of the 'yips' in general, and also the frequency at which they occurred (figure 6.10). At baseline, it could be seen that the participant perceived that the 'yips' were highly prevalent and severe in nature. The participant reported: "At least half of the 'yips' were severe, others less so but still sufficient to ruin a putt". After the first session of EFT, the participant reported that the severity and frequency had decreased: "Something has changed since the first session of EFT. I'm not sure what has changed. Later on I managed to putt without any trouble at all, but that was after repeating many putts". This improvement coincided with an improvement in the visual occurrence of the 'yips' (figure 6.5), the participants performance in the laboratory (figure 6.6) and a reduced trial to trial

Figure 6.10 - Frequency and severity' of 'yips5 symptoms on the golf course as recorded by participant B



variability in the rotation and velocity of rotation (figures 6.7 – 6.9). After the fourth session of EFT, the participant reported that there was no feeling of the 'yips' when out on the golf course:

> "I look forward to the 2006 season with much excitement, fully confident that this terrible affliction has been finally exorcised by Lynn's exceptional skills and ability. I also believe that, as a bonus to curing the yips, I am now a different person. I see things and react differently to situations in everyday life. I feel better. I know that this is as a direct result of the therapy I underwent and would recommend it to anyone."

The data for visual occurrence (figure 6.5), putting success (6.6), rotation and velocity of rotation (figures 6.7 – 6.9), and self report data (6.10) illustrated that the improvements observed after the 4th session of EFT lasted a minimum period of 6 months post intervention.

6.4 DISCUSSION

Previous investigations have suggested that significant life experiences occur prior to the development of the 'yips' (studies 1 & 2). The findings of study 3 suggested that individuals with the 'yips' were high in perfectionism in comparison to their non-yips controls. Previous research has suggested that individuals who are high in perfectionism are more prone to daily life stresses than those who are low in perfectionism (Flett et al., 1995; Fry, 1995; Hewitt et al., 1996). It was argued that the combined effects of the significant life event and the individual's perfectionist personality characteristics may have caused the initial 'yip'. It was hypothesised that by treating emotions associated with the significant event, the physical symptoms

associated with the 'yips' would subside. This study used EFT as a treatment intervention as recent evidence has shown EFT to be a fast and effective tool in dealing with traumatic events (Flint et al., 2006). The rationale behind using EFT was simply to test whether it would have an impact, and if so, how long these effects took place for. Due to the relative infancy of EFT as an intervention tool, the study was conducted in two phases, with the primary phase providing the rationale for a secondary phase, if the primary phase proved successful.

The findings add support to the recent evidence emerging which suggests EFT is a fast and effective intervention strategy for dealing with emotional or traumatic memories (Flint et al., 2006; Wells et al., 2003). The initial findings would seem to suggest that EFT was an effective intervention strategy for treating the potential underlying causes of the 'yips' in the case of the former International cricket bowler as positive improvements were observed from pre-intervention to post-intervention. Whilst it was difficult to distinguish the overall effectiveness of the intervention in phase 1 based upon the limitations within the design, it can be seen that by the end of the treatments, the client had started to perform once again, and thoughts and behaviours had changed somewhat from those at the outset. Prior to taking part in the intervention, the participant reported that there was a 'hesitant jerky feeling' as he tried to bowl the ball. This would result in a lack of control over the ball, where he would bowl wide balls. The resultant feelings he experienced where of embarrassment, intense anxiety and panic. On occasions where he 'yipped' early in an over, feelings of 'here we go again' manifested. This was further magnified by the fact that the laws of the game require the bowler to bowl 6 legal deliveries to constitute an over. These findings were consistent with previous research examining the 'yips' in cricket bowlers (Bawden & Maynard, 2001).

By the end of the fourth session of EFT directed at the significant event, the participant had started to bowl again. The hesitant jerky feelings experienced prior to the intervention had disappeared. This finding tentatively supports the hypothesis that by dealing with the emotions associated with the significant event, the resultant physical sensations would subside. In addition, the participant was looking forward to bowling again. Interestingly, the cricketer also stated that their perception of a 'yipped' ball had changed. Previous research using EFT have shown that a participant's perceptions of events change as emotions are dealt with using EFT (Flint et al., 2001). The findings from this case are difficult to interpret however, as the data used were primarily qualitative, and was largely based upon what the participant experienced. As a result, it was difficult to make any conclusions based on these data. It did however; provide a rationale for exploring the role of EFT in more depth, using a controlled single subject case study, with multiple dependent variables.

Phase 2 provides much more detailed information in terms of the intervention's effectiveness, as to where improvements took place, and the resultant longevity of the intervention. Post intervention, there were no visual indicators of the 'yips', where at the beginning of the study, a large involuntary twitch could be seen in the participant's left forearm when striking the ball. In addition, the participant's putting performance had increased to 85%, where at the beginning it was only 64%. Kinematics data offered support for the findings and an explanation as to why the 'yips' cause performance to decrease so dramatically. At baseline, it could be seen in the velocity of rotation data, that the participant's putting stroke displayed large trial to trial variability, which was characterised by sharp peaks and troughs upon impact with the ball. However, after the fourth session of EFT, variability in the velocity of rotation data had decreased. This was characterised by a smoothing of the lines which indicated a more consistent putting stroke. The results suggest that these

improvements lasted for a minimum of 6 months. Finally, and most importantly, these improvements were also observed on the golf course, therefore the improvements observed in the laboratory could be attributed to the intervention in this case study, and not learning effects associated with the laboratory conditions. This provides some preliminary evidence of the intervention's ecological validity.

The participant in phase 2 stated he felt his personality had changed as a result of the intervention. Whilst it was not an aim of the investigation to explore this, it warrants discussion based on similarities with previous research. Greway (2003) reported similar findings when using Eye Movement Desensitisation and Reprocessing (EMDR) combined with EFT, when treating individuals who experienced trauma compared with a control group. Greway (2003) indicated personality changes were evident through the re-processing of past traumas. Care must be taken interpreting the finding presented here, as the participant only reported he perceived his personality to have changed. One area of future enquiry will be to explore whether the re-processing of significant events reduces participant's scores on the FMPS (Frost et al., 1993) and the reinvestment scale (Masters et al., 1993), as these have been shown to predict individuals who are more susceptible to developing the 'yips'.

In both cases presented, the physical disturbances which occurred prior to the intervention were characteristic of focal dystonia (Lim et al., 2001). The hesitant jerky feeling which the cricket bowler experienced, and the involuntary twitch the golfer experienced, occurred in task execution (chapter 4, pp. 104 & 107). In addition, both participants had experienced what they termed a significant event prior to the development of their 'yips'. Recent evidence has started to suggest that significant life events may play a role in the onset of movement disorders. These disorders have been termed psychogenic movement problems (cf., Thomas et al., 2006). A recent study

found that out of a sample of 227 individuals who experienced some sort of movement disorder, 33.5% (n = 76) experienced a personal life stress which preceded the development of the problem (Thomas et al., 2006). In addition, 28.6% (n = 65) experienced some sort of trauma. Similarly, Schweinfurth et al. (2002) indicated that 21% of individuals experienced a major life stress prior to the onset of spasmodic dysphonia, a disorder very similar to those experienced in occupational tasks. Schmidt et al. (1994) indicated the presence of profound emotional events prior to the onset of focal dystonia in two women. Considering the fact that the physical symptoms subsided after the EFT intervention in both cases presented, may tentatively suggest that the 'yips' are a form of psychogenic movement disorder. Future research certainly needs to clarify the underlying causes of each type of movement disorder, as at present there is much confusion (Lim et al., 2001). It could be that each type of movement disorder is a form of psychogenic disorder. Likewise, it could be that psychogenic movement disorders are a complete category of movement disorder of their own, into which the 'yips' may fall into. Future investigations need to fully explore both possibilities, as the root cause would certainly impact the nature of the intervention to be administered to the individual.

A recent review of the dystonia literature might add clarity to this finding (Lim et al., 2001). It was suggested that the basal ganglia and the frontostriatal system may serve as an interface between motor and emotional memories, as it integrates limbic, proprioceptive, and sensorimotor inputs to create emotionally and functionally appropriate movements. Damage to the basal ganglia has resulted in a wide range of dysfunctions in both emotions and motor behaviour (Lim et al., 2001). Whilst only speculative at this stage, it could be that the occurrence of a significant psychological event causes damage to the function of the basal ganglia, thus resulting in impaired movements in the golf putting task or the cricket bowling action. It is suggested that

future research should examine the 'yips from a number of angles, to produce a body evidence that serves to answer the questions that remain unanswered. Whilst it is suggested that psychological factors are a major factor in the 'yips' experience, neurological evidence is required to further add to our understanding of the problem.

Intervention strategies for treating the 'yips' have historically been focused upon technical changes (Smith et al., 2000; 2003). It has been previously argued that a focal dystonia is caused by an overuse of the motor programme, thus a technical change results in a new motor programme being used. Whilst this may work, it is argued, certainly in the two cases presented here, that a technical change may not get to the root cause of the problem. This comes back to the debate as to what causes the 'yips' to occur in the first place. There is much anecdotal evidence to suggest that the 'yips' will come back at some stage, even with the intervention of a technical change. Bernhard Langer is a classic example, whereby he has made technical changes through the use of different putters on four separate occasions, only for each time the 'yips' to re-appear (White, 1993). An alternative explanation for this improvement may be that by changing the environment, one is merely breaking a conditioned response (cf. Pavlov, 1927). As soon as aspects of the environment become familiar again (e.g., decision making processes), the 'yips' symptoms return.

Indeed, recent evidence has also tried to utilise cognitive behavioural techniques, focused on reducing the debilitating symptoms the 'yips' produce in golfers (Bawden & Maynard, 2004). Over a four week period golfers were taught a series of techniques that could be used in their pre-putting routine. The intervention taught the golfers to image themselves putting successfully using external imagery in combination with a 'holistic' trigger word. The results indicated improvement in performance for the golfers when comparing pressure and treatment conditions. Whilst the psychological

intervention had a successful impact on performance, the study failed to explore the role of retention over a period of time. Applied experience informs us that whilst psychological skills techniques may help to manage the 'yips', one bad performance will often trigger the 'yips' to come back worse than before. In addition, the Bawden and Maynard (2004) study was directed at the symptoms of the 'yips', rather than the central causes of the problem.

Whilst the role of EFT as an intervention tool is open to debate, the improvements observed in phase 2 after the fourth element of the intervention, appear to have had a positive effect on performance up to 6 months post the final treatment. This would appear to add strength to the claim that the 'yips' in the golfer in phase 2 were of psychogenic origin. Whilst it is presumptuous to suggest that the 'yips' are holistically a psychogenic problem, the commonalities observed here with recent movement disorder research warrant further investigation (Schmidt et al., 1994; Schweinfurth et al., 2002; Thomas et al., 2006).

It is not fully understood how or why these improvements have taken place. In light of the fact that EFT is derived from acupuncture theory, EFT may have obtained its results through intervening in the body's so-called energy system (Wells et al., 2003). Evidence showing a marked difference between acupuncture points and non-acupuncture points in terms of electrical resistance of the skin (Bergsmann & Wooley-Hart, 1973; Cho, 1998; Cho & Chung, 1994; Liboff, 1997; Syldona & Rein, 1999) is, in turn, consistent with the notion that the meridian based therapies may derive their special therapeutic properties from stimulating specific acu-points (Callaghan, 1995; Gallo, 1999). Certainly, the theory of EFT would be better understood if future studies can incorporate experimental control conditions such as 'random tapping' groups. By comparing a random tapping group, versus EFT and an appropriate control condition,

it would then become evident whether indeed EFT obtains its results in the body's so called energy system (Wells et al., 2003). Indeed, further support for this explanation may be gained by measuring physiological changes (e.g., heart rate) which occur in relation to each point being tapped.

A second explanation could be that EFT constitutes a novel form of desensitisation (Wells et al., 2003). Wells et al. (2003) pointed out that since EFT requires focusing of attention upon a feared object whilst tapping, this combination of repeated focusing while one is relaxed may desensitise them to the effects of anxiety.

An additional explanation might be down to the experience of the practitioner used in the present study. The practitioner used in the present investigation had over twenty years experience of dealing with clinical problems, where her background originated from clinical hypnotherapy. In addition to this, the practitioner also had two years experience of working with golfers who experienced the 'yips'. The practitioner was aware of underlying emotional problems prior to the development of the 'yips' through her clinical experience of treating individuals with the problem. Whilst checks were made that the practitioner followed the EFT treatment method, it is suggested a certain amount of intuitive work took part once the initial problem was explored, and the separate 'aspects' of the problem emerged (Grand, 2001). The analogy of peeling an onion best describes the process. Once the initial layer was removed (i.e., performance issue for the cricket player, humiliation experienced by the golfer), separate skins emerged which needed to be removed before other skins became prevalent. Whilst it was suggested at the outset the practitioner would work solely on the issue presented, it was clear that separate life events also linked in with the presenting issue. Therefore, a certain degree of success within the present study must be attributed to the skills of the practitioner used in the study.

It is important to reiterate that it was not the role of this investigation to explore whether EFT was the preferred mode of intervention. To do this, we would have to include the best mode of treatment available as a comparison condition, that being cognitive behavioural therapy. The purpose of this investigation was simply to explore whether EFT may improve the condition. It is clear that the present study has shown EFT to be an effective treatment intervention. It is vitally important that future investigations explore the role of EFT compared against other modes of intervention such as CBT, counselling, or psycho-analytical therapy. In addition, future investigations should try and control for the levels of expertise of the practitioner dealing with the problem. The one advantage EFT is claimed to have over these therapies is the speed at which it removes negative emotional states (Wells et al., 2003). Certainly, in the case of the two cases presented here, it would appear that the intervention has worked very quickly. However, it would be irresponsible to claim that this intervention is quicker or more effective than other modes of therapy until appropriate control and comparison conditions are used, with larger and more representative samples.

CHAPTER 7

7.0 DISCUSSION AND CONCLUSIONS

The ‘yips’ is a phenomenon that has not been fully explored in the sport literature. As a result, it is not fully understood or appreciated what the problem is, and what it entails for the sports person. The primary aim of this thesis was to provide conceptual clarity to the term described as the ‘yips'. A secondary aim was to provide a research base from which the findings could be applied in the treatment of the phenomenon. Therefore, the specific aims of this thesis were to identify the sport skills which were predominantly affected by the affliction and to explore the physical and psychological mechanisms of the ‘yips' experience. A further aim was to identify the potential underpinning mechanisms which bring about the ‘yips'. In addition to this, pre-dispositional factors were explored to see if certain individuals were more prone to developing the problem. A final aim was to identify a potential intervention strategy which could be used to counter the debilitating effects of the problem which was specifically directed at perceived root causes of the phenomenon. The aim of this chapter is to provide a summary and evaluation of the findings of the research. Theoretical and conceptual developments are presented throughout the section. Recommendations for future research and implications for sport psychologists working with individuals who experience the ‘yips' are also be outlined. Finally, the strengths and weaknesses of the thesis are highlighted throughout.

7.1 SUMMARY OF FINDINGS

7.1.1. Physical and psychological symptoms associated with the ‘yips' experience

Previous research suggests that the ‘yips' is a psycho-neuromuscular impediment affecting the putting stroke in golf only (Smith et al., 2000). Sachdev (1992) tentatively indicated that cricket, tennis, table tennis, and snooker were also affected by

the problem. The purpose of study 1 was to explore the 'yips' using a survey-based approach of individuals who had suffered from the problem.

The predominant sports skills affected by the 'yips' were the golf putting task, the darts throw and the cricket bowling action. Similarities emerged in the psychological symptoms experienced. In chapter 3, all participants reported feeling out of control in the environment, a perceived inability to perform the skill, fear of the environment, personal embarrassment, external concerns, self-consciousness and a lack of confidence. Likewise, in study 2, participants reported a high degree of personal frustration, intense anxiety, self-consciousness, obsessional thinking, and also feeling out of control in the environment. However, differences emerged in the physical symptoms described. Similar findings were reported in studies 1 and 2. The participants in these sports all suffered from physical disturbances which occurred in the execution of the skill. For instance, involuntary movements and freezing were experienced by golfers and darts players. Darts players and cricket bowlers experienced an inability to release the implement (i.e., dart or cricket ball) towards the desired area (i.e., the dart board and an appropriate area on the cricket pitch). These findings may suggest the 'yips' are a sport-specific version of focal dystonia, similar to the research reported in golf (Adler et al., 2005; McDaniel et al., 1989; Sachdev, 1992; Smith et al., 2000; 2003).

This thesis raises the possibility that the 'yips' in the sports of golf, darts and cricket are sport-specific versions of the movement disorder. In occupational tasks, similarities emerge with the findings reported in studies 1, 2 and 3. For instance, individuals with writer's cramp can often use their hands for activities except writing (Toichi et al., 2001). When they begin to write they will often experience an involuntary pull or a jerk, which results in extension or flexion of one or more fingers

or the wrist (Smith et al., 2003). Musicians will develop a similar involuntary flexion or extension of the fingers or wrist that is involved with playing the instrument (Smith et al, 2003). Dentists and surgeons with focal dystonia will experience involuntary movements when carrying out precision tasks (Smith et al., 2003). Those with SD, a focal dystonia of the voice cords, will experience involuntary contractions of the laryngeal muscles (Shaefer & Freeman, 1987). There is a suggestion that SD is the problem singers experience when they find they can no longer resonate when on stage (Lim et al., 2001). Those who experience HFS will suffer from involuntary contractions of the facial nerve (Tan et al., 2005).

The findings of this thesis, and their links with focal dystonia, have important implications for sport psychologists. Previously, much difficulty has arisen in precisely labelling the 'yips'. The over-riding factor which accompanies the 'yips' experience is that individuals experience a long-term breakdown in the performance of skills which they could previously perform with ease (McDaniel et al., 1989). The contributing factors for this breakdown would appear to consist of tension in the muscles specifically involved in skill execution. These symptoms are accompanied by further involuntary movements which act at the moment skill execution takes place. When these symptoms are presented to the sport psychologist, they should now be able to identify and label the problem, and take appropriate steps to counter the issue. For example, a cricketer might present an issue to the sport psychologist that they can no longer bowl the ball. Appropriate questioning might include: 'How does it feel 'physically and psychologically' when you try to bowl". If the responses include symptoms such as those presented above, then it should make the psychologist aware that the individual may be suffering from the 'yips'. To assist individuals overcoming the 'yips', it is important that the sport psychology practitioners are aware of the

psychological processes which potentially underpin the ‘yips’ experience. The following section will present these mechanisms.

7.1.2. Mechanisms underpinning the ‘yips' experience

Previous research suggested the 'yips' lie somewhere on a continuum by which focal dystonia and choking anchor the extremes (Smith et al., 2000; 2003). Whilst this continuum is appealing in that it serves to highlight the symptoms experienced, it does little in terms of offering an explanation as to what causes the ‘yips’. The following paragraphs will present findings from this thesis which illustrate that psychological issues may be a potential causal factor in the ‘yips' experience. Based on the findings presented here, appropriate practical guidelines will be presented for practicing sport psychologists, so that preventative measures can be designed.

In study 1, a larger percentage of participants perceived their ‘yips' to have a psychological cause, even though they were manifested in physical disruptions in skill execution. Eleven percent of participants cited significant events prior to the development of their ‘yips'. It is acknowledged that this is only a small perentage however, in study 2, prior to the initial experience of the ‘yips’, the three participants who took part in the initial phase of the interviews cited the occurrence of significant life events at or around the time the ‘yips' started. As part of the sampling process involved during grounded theory, this theme was explored further in subsequent interviews (Strauss & Corbin. 1990). In each of the following interviews, participants confirmed the initial findings. A range of events were highlighted. Two of the cricketers cited events which they termed humiliating; one cited sleepless nights over an upcoming International Tour which resulted in a ‘yips’ performance, and another cited relationship pressures. Three of the darts players cited a relationship breakdown prior to the ‘yips’, and one cited uncertainty about their future at work due to problems

with his manager. One of the golfers cited a humiliating event another recalled their parents getting divorced; a further golfer cited a life and career transition; and another cited an irrational perception at an early age. The importance of these findings were highlighted as, in seven of the twelve interviews conducted, potential triggers were highlighted between the significant event and the first occurrence of the 'yips'. In addition, individuals who experience the 'yips' appear to display high levels of perfectionism and obsessionalism (see study 3). Previous research has highlighted that perfectionists are more susceptible to daily life stresses than those who are low in this personality trait (e.g., Hewitt et al., 1996). In study 4, it was shown that by treating the potential underlying emotional event, the physical symptoms associated with the 'yips' subside, which adds further support that the 'yips' may be psychogenically based.

These findings share similarities with recent movement disorder research. A number of studies have found that psychologically significant life events play a role in the onset of varying forms of focal dystonia (cf.. Baker & Humblestone, 2005; Crimliskl et al., 2006; Kirsch & Wink, 2004; Lees, 2002; Schmidt et al., 1994; Schweinfurth et al., 2002; Thomas et al., 2006). These disorders have been termed psychogenically based movement disorders, and explanations have been based in the mechanisms of dissociation and conversion (Baker & Humblestone, 2005). The models are explained by the process of converting psychological pain to physical symptoms, brought about by a discharge of emotional pain (Baker & Humblestone, 2005). In the event of a trauma the individual would suppress emotional expression; the suppressed emotion would then be manifested as a physical symptom to which the individual gained relief from the psychological pain. This consequently leads to the unlinking or dissociation of the physical experiences and the memory of the event. Environmental triggers can then lead to the re-experiencing of the physical sensations but the memory of the event remains unrecalled (Brown, 2004). Considering the similarities between the 'yips' and

focal dystonia, it could be that they are both specific forms of psychogenic movement disorder. However, it would be unwise to suggest this is the sole cause of the 'yips' or focal dystonia.

It has been suggested that focal dystonia could be caused by an abnormality in the dopaminergic system in the basal ganglia, but neuropathologic studies have been inconclusive (Lim et al., 2001). Secondly, dystonias may be caused by medications such as antidopaminergic agents (Adler, 2000), metabolic diseases, head injury or stroke. Whatever the cause is, psychologically significant factors cannot be ruled out as has been highlighted in study 1 and further research is required to highlight the prevalence of these findings. Of particular interest is that damage to the basal ganglia has resulted in a wide range of dysfunctions in both emotions and motor behaviour (Lim et al., 2001). Whilst only speculative at this stage, it could be that the occurrence of a significant psychological event causes damage to the function of the basal ganglia, thus resulting in impaired movements. Future research should examine this possibility from a multi-disciplinary perspective.

These findings suggest it is important for sport psychologists to understand how psychologically significant events can affect athlete's performance. It would appear in this instance that events of this nature have resulted in the production of physical symptoms (i.e., the 'yips') which have gone on to disrupt performance. It is important that psychologists can understand, predict and change behaviour. These findings share the first insights into understanding and predicting when someone may go onto experience the 'yips'. It is therefore important that practitioners understand the impact that events of this nature can have on certain individuals. The following section will help to tie these two sections together as it links personality characteristics and an individual's susceptibility to the negative impact of life events.

7.1.3. Are certain types of individual more prone to the 'yips' experience?

Study 3 aimed to build upon the findings of studies 1 and 2 by examining whether individuals with the 'yips' had elevated levels of certain personality characteristics relative to those who do not suffer from the phenomenon. Study 1 indicated individuals with the 'yips' had higher levels of self-consciousness than those who do not suffer from the problem. Study 2 highlighted that a potential interaction may occur between personality factors on a number of levels in the 'yips' experience. Firstly, an individual may display higher levels of perfectionism which makes them more susceptible to life stresses which were evident prior to the development of the 'yips'. Secondly, an individual may have higher levels of obsessional thinking, and a pre-disposition to 'reinvest' which serves to condition the 'yips' into a long-term movement disorder. The aim of study 3 was to explore whether these personality factors were present in those who had the 'yips' in comparison to their matched controls.

The findings from studies 2 and 3 indicated that those individuals who experienced the 'yips' have higher levels of perfectionism than those who do not suffer from the phenomenon. This finding is important on a number of levels. Firstly, individuals who have higher levels of perfectionism are more prone to the negative effects of daily life stresses than those who are lower in this trait. For instance, Hewitt et al. (1996) found that both self-orientated perfectionism and socially prescribed perfectionism are correlated with interpersonal stressful life events. Similarly, Dean et al. (1996) reported a correlation between negative life events as measured by the LES (Sarason et al., 1978) and socially prescribed perfectionism. In study 1. and more so in study 2. it was highlighted that significant life events occurred prior to the development of the 'yips'. Given the links between high levels of perfectionism and life stresses outlined

here, this would certainly he an area for future research to undertake. At present, it is not clear what mechanisms underpin this process. It was suggested that the PS factor of the FMPS (Frost et al., 1990) may be an important linking factor which distinguishes how an individual uses their perfectionism. Individuals who experienced the 'yips' were higher on this factor than those who do not suffer from the problem. The PS factor has been shown to have associations with adaptive and maladaptive trends of perfectionism (Kwawaja & Armstrong. 2005). Given the fact that the 'yips' is a maladaptive form of behaviour, one might postulate that individuals with the 'yips' use this aspect of perfectionism in a dysfunctional manner. Stumpf and Parker (2000) have shown that those aspirations in life can be an unpleasant experience if accompanied by uncertainties and an overly critical style. The tendency to be critical towards one's self and to indulge in self-doubts appears to be influenced by setting high standards (Enns & Cox, 2002). Therefore, those individuals who experience the 'yips' may have high standards which result in being overly critical.

Recent research has suggested that musicians who suffer from focal dystonia have higher levels of perfectionism than those who do not suffer from the affliction (Jabusch & Altenmuller, 2004; Jabusch et al., 2004). Care is warranted in making this link however as the tool used to measure perfectionism in those studies was not psychometrically validated. It was based on practitioner experience of dealing with individuals who suffer from the problem. However, the finding is still worthy of discussion as it ties in with previous findings from studies 2 and 3. Furthermore, it is important given the links between high levels of perfectionism and obsessionalism as it would appear they are a similar concept (Frost & DiBartolo, 2002).

Study 3 highlighted, that individuals who experienced the 'yips' were higher on the CM and DA aspects of the FMPS (Frost et al., 1990) than those wfio do not suffer

from the affliction. Frost et al. (1990) found that the CM and DA dimensions of perfectionism were closely related to OCD symptoms. This finding supports the research which has examined the 'yips' in the sport of golf (McDaniel et al., 1989; Sachdev, 1992). Both the McDaniel et al. (1989) and Sachdev (1992) findings indicated that those individuals with the 'yips' had higher levels of obsessional thinking than those that did not suffer from the problem. Indeed, researchers have reported that those individuals with focal dystonia have elevated levels of obsessive compulsive disorder (Bihari et al., 1992; Broocks et al., 1998; C'avellaro et al., 2002; Kubota et al., 2001; Munhoz et al., 2005; Rothfield, 1995; Shulze & Stephan, 1987; Toichi et al., 2001; Wenzel et al., 1998). Given the links between the previous research examining the 'yips', the research examining focal dystonia and the findings here, one would suggest that individuals with higher levels of OCD symptoms are more susceptible to developing the problem.

Study 3 also indicated that individuals with the 'yips' will have a greater predisposition for reinvestment than those in a matched, non-yips population. Reinvestment is the pre-dispositional nature individuals possess which is used in the conscious deployment of explicit, declarative knowledge to control the mechanics of a movement. These findings were in support of current movement disorder research. It has been suggested that those individuals who experience movement disorders are self-conscious about their movements (cf., Grattan et al., 2001). Likewise, Jahanshahi (2000) found that stress and heightened self-consciousness increased the severity of dystonia. Grattan et al. (2001) have shown that individuals with stroke were described as highly self-conscious or deep thinkers.

Sport psychologists may benefit from being more pro-active from the start of any applied work with players of golf, darts or cricket. It would appear that individuals

who are high in perfectionism, obsessionalism and reinvestment are more prone to the development of the 'yips'. Hence, some form of assessment of these attributes may be beneficial for practitioners. Furthermore, an assessment of reinvestment (Masters et al., 1993) could provide useful data relevant to future work with athletes from these sports. The importance of being pro-active is that preventative measures could then be put in place to help prevent individuals from going onto to develop the 'yips'. These may include education style sessions raising awareness to the negative impact to which perfectionism can affect individuals. For instance, it would be beneficial to educate these individuals in skills such as rationalising, or the ability to counter debilitating perfectionist style thoughts.

7.1.4. Why do the 'yips' develop into a long-term problem?

Smith et al. (2003) concluded that the 'yips' are on a continuum by which focal dystonia and choking anchor the extremes. They suggest that Type II golfers experienced choking, as a consequence of self-focused attention, performance anxiety and possible over-analysis. A problem with the choking part of the continuum proposed by Smith et al. (2000) is that it does little to explain the long-term prognosis which 'yips' sufferers often report. In study 1, it was highlighted that the 'yips' are a long-term movement problem. Similar to the Smith et al's. (2003) research, it was shown in study 1 that all individuals displayed high levels of self-consciousness regarding their 'yips' experience. In study 2, this finding was confirmed, as all participants reported a high degree of self-consciousness within the initial and subsequent experiences of the 'yips'. It has been shown that paying attention to one's movements is problematic as, consciousness no longer holds the knowledge base required for performance (Masters, 1992). Masters (1992) refers to this conscious deployment of explicit, declarative knowledge to control the mechanics of a movement

as ‘reinvestment'. This aspect on its own however doesn't explain why the ‘yips’ go on to be experienced long-term. This aspect may be explained by the fact there was also a high level of obsessional thinking regarding the initial ‘yips' experience. Previous research has shown that individuals with the ‘yips' display high levels of obsessional thinking (McDaniel et al., 1989; Sachdev, 1992). Considering the resultant longevity of the ‘yips’ experience, it is suggested that these two factors may combine to produce the long-term affliction. Obsessional thinking is linked to rehearsal which is one of the components of the reinvestment scale. This thesis has raised the possibility that reinvestment combined with the individual’s obsessional thinking nature may help manifest the ‘yips' into a long-term disorder. Once the initial ‘yip’ has occurred, obsessive thoughts combined with an individual’s propensity to reinvest could serve to condition the ‘yips' to become long-term (cf., Pavlov, 1927). In subsequent occasions the ‘yips’ was experienced, a level of obsessional thinking and reinvestment into the skill could be seen. It could be that a stimulus-response type environment has been created in the initial experience, which has been conditioned over time through the individual's high levels of obsessional thinking. Therefore, it is suggested that the choking aspect of the Smith et al. (2003) continuum is possibly a consequence of the ‘yips' but not the sole cause. Care must be taken with this suggestion as this in only an initial understanding of the problem; therefore, future research is needed to confirm this hypothesis.

7.1.5. The development of a psychological intervention strategy to reduce the symptoms of the ‘yips'

Study 4 attempted to integrate the findings of studies 2 and 3 into a psychological intervention strategy for two performers who suffer from the ‘yips' in the sports of cricket and golf respectively. It was argued that the combined effects of a significant

life event and the individual's perfectionist personality characteristics may have caused the initial 'yip'. It was hypothesised that by treating emotions associated with the significant event, the physical symptoms associated with the 'yips' would subside. This study used EFT as a treatment method because recent evidence has shown EFT to be a fast and effective tool in dealing with traumatic events (Flint et al., 2006). The rationale behind using EFT was simply to test whether it would have an impact, and if so, how long these effects lasted. In both participants, EFT proved to be a successful intervention strategy for dealing with the perceived cause of the 'yips'. These improvements lasted a minimum of 6 months for the golfer presented. Furthermore, these improvements were carried onto the golf course suggesting some ecological validity was present.

The intervention was aimed specifically at significant life events which occurred prior to the development of the 'yips'. Considering the improvements gained in both cases, the results presented in study 4 add tentative support to the argument that the 'yips' is a form of psychogenic movement disorder. Given the similarities between the 'yips' and focal dystonia, it is also possible, that the latter is psychogenic in origin. Likewise, it could be that psychogenic movement disorders are a complete category of their own, and the 'yips' is a subset of this category. Future investigations need to fully explore both possibilities, as the root cause would certainly impact on the nature of the intervention to be administered to sufferers.

Intervention strategies for treating the 'yips' have historically been focused upon technical changes (Smith et al., 2000; 2003). There is much anecdotal evidence to suggest that the 'yips' will return, with the intervention of a technical change. Bernhard Langer is a classic case example, whereby he has made technical changes through the use of different putters on four separate occasions, only for each time the

'yips' to re-appear (White, 1993). An alternative explanation for this improvement may be that by changing the environment, one is merely breaking a conditioned response (cf. Pavlov, 1927). As soon as aspects of the environment become familiar again (e.g., decision-making processes), the 'yips' symptoms return.

A recent study utilised a cognitive behavioural technique which was focused on reducing the debilitating symptoms of the 'yips' in golfers (Bawden & Maynard, 2004). The results indicated improvement in performance for the golfers when comparing pressure and treatment conditions. Whilst the psychological intervention had a successful impact on performance, the study failed to explore the role of retention over a period of time. Evidence from study 2 informs us that whilst psychological skills techniques may help to manage the 'yips', one bad performance will often trigger the 'yips' to come back worse than before. In addition, Bawden and Maynard's (2004) study was directed at the symptoms of the 'yips', rather than the central causes of the problem.

In study 4, it was not fully understood how or why the improvements took place, as the intervention strategy is relatively new. In light of the fact that EFT is derived from acupuncture theory. EFT may have obtained its results through intervening in the body's so-called energy system (Wells et al., 2003). The theory of EFT would be better understood if future studies can incorporate experimental control conditions such as 'random tapping' groups. By comparing a random tapping group, versus EFT and an appropriate control condition, it would then become evident whether indeed EFT produces its results via the body's so called energy system (Wells et al., 2001). An additional explanation might be down to the experience of the practitioner used in the present study. The practitioner used in study 4 had over twenty years experience of dealing with clinical problems, and a background in clinical hypnotherapy. In addition

to this, the practitioner also had two years experience of working with golfers who had experienced the 'yips'. Once it can be established how this treatment method obtains its results, it is recommended that sport psychologists should become trained in such procedures so that they can deliver the intervention.

7.1.6. A summary of the processes involved in the 'yips' experience highlighted by this thesis

This thesis has highlighted a number of processes that individuals appear to go through in order for the 'yips' experience to develop. At the outset, individuals display high levels of perfectionism, obsessionalism and a pre-disposition to reinvest. It would appear that the prevalence of a significant life event in conjunction with the individual's perfectionist personality style may make an individual more susceptible to the initial 'yip'. Specifically, it is thought that the PS factor of the FMPS (Frost et al., 1990) is used in a dysfunctional manner. According to the theory of dissociation, it would appear that once an environmental trigger is prevalent, physical symptoms (i.e., the 'yip') are presented, which prevent the individual from re-accessing the traumatic memory (Baker & Humblestone, 2005). The case of the golfer in phase 2 of study 4 best demonstrates this, whereby 'yips' symptoms only presented themselves once the golfer overlooked the 18th green, where 6 months previous, this traumatic experience had taken place. Dependent upon the skill being performed, the physical symptoms would appear to manifest in the muscles specifically involved in skill execution. For example, the golfer will experience an involuntary twitch in their forearms. Alternatively, the cricketer or darts player will experience tension in the hand, resulting in their inability to release the object (i.e., cricket ball/dart) towards the desired area. A range of psychological symptoms would appear to manifest in this initial experience. As a result of being unable to perform the skill successfully, they

experience intense anxiety, and a lack of control. It would appear this causes the individual to reinvest in their skill base. However, the individual continuously reinvests based upon their obsessional thinking style. Applied experience would tend to suggest that individuals with the 'yips' go through a similar process each time. However, future investigations must now confirm the relevance of this summary whereby an appropriate model of the 'yips' experience can be developed and tested.

7.2 CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

The findings from this research suggest the 'yips' is a performance problem, which is manifested in physical disruptions occurring in skill execution, which predominantly affect the sport skills of golf-putting, the cricket bowling action and the dart throw. The thesis suggests that individuals who experience the 'yips' are high in perfectionism, obsessional thinking and self-consciousness. This is the first piece of research to acknowledge that individuals who experience the 'yips' have elevated levels of perfectionism. This thesis posits that psychologically significant life events combined with an individual's dysfunctional perfectionism may be the cause of the 'yips' (Hewitt et al., 1996). The research has presented a theory which explains how psychologically significant life events can manifest in physical symptoms which occur in skill execution (Baker & Humblestone, 2005). It has also suggested possible mechanisms in how this may operate within the basal ganglia. Finally, this thesis has shown EFT to be an effective treatment of the 'yips'. In the two cases presented, EFT dealt with the negative emotions associated with the life event, and the subsequent physical symptoms associated with the 'yips' experience. The research has answered a number of questions which were previously unanswered. It has added clarity to the term the 'yips' whilst also provoking further debate as to what the 'yips' actually is. This research has also opened up a whole range of research areas which now need to

be explored in more detail. The aim of this section is to identify the potential gaps in the research that may be pertinent for future investigators.

The first recommendation is that future research should look to examine the 'yips' in sports other than golf, darts or cricket. In study 1, it emerged that other sports skills were affected by the problem, however insufficient data collection meant an in-depth analysis of these other sports was not possible. Thus the sports of snooker, tennis, table tennis, archery and shooting to name but a few, should all be investigated to see if there are similar symptoms and causes to the evidence presented in this thesis. If the 'yips' are similar across sports, one might expect the muscles involved in skill execution to be affected in these activities also. For instance, it could be that the muscles involved in the 'cueing' action in snooker are affected. It might be that the fingers or muscles involved in the release mechanism are affected in shooting.

A further recommendation is for researchers to examine the levels at which personality variables operate. Clearly, there are links between the present research and those in occupational domains. For instance, researchers examining focal dystonia in musicians have shown they display more elevated levels of perfectionism than controls (Jabusch et al., 2004; Jabusch & Altenmuller, 2004). Researchers have also shown that individuals who experience various forms of focal dystonia are higher in levels of obsessional thinking (Bihari et al., 1992; Broocks et al., 1998; Cavellaro et al., 2002; Kubota et al., 2001; Munhoz et al., 2005; Rothfield, 1995; Shulze & Stephan, 1987; Toichi et al., 2001; Wenzel et al., 1998). Furthermore, it has been established that those individuals who experience movement disorders are self-conscious about their movements and described themselves as deep thinkers (cf., Grattan et al., 2001). It is important to establish the role that these personality traits play in the development of the 'yips'. It was tentatively suggested that obsessional thinking could operate at three

levels in the overall "yips' experience. These levels were after the occurrence of the significant emotional event, during the first experience of the 'yips* and in subsequent experiences of the 'yips'. The evidence from this thesis adds support to previous research investigating the 'yips' (McDaniel et al., 1989). Future research needs to confirm the relevance of these findings as this is only an initial suggestion in how this variable could potentially operate during the 'yips' experience.

A further recommendation is for researchers to examine how individuals with the 'yips' use their perfectionism in the advent of psychologically significant life events. Previous research has shown that individuals who are high in levels of perfectionism are more prone to the negative impact of life events. For instance, Dean et al. (1996) reported a correlation between negative life events as measured by the LES (Sarason et al., 1978) and socially prescribed perfectionism. Frost and DiBartolo (2002) suggested the association between LES and perfectionism levels may be the result of the cognitive-appraisal style characteristic of perfectionism rather than any real difference in the frequency of life events. By utilising measurement tools such as the LES (Sarason et al., 1978), the inferences made here can be corroborated with previous research examining clinical populations. Therefore, it would be expected that those individuals who experience the 'yips' would have elevated levels on the LES and perfectionism compared with individuals who do not suffer from the problem.

Future research needs to examine the relationship between the 'yips', focal dystonia and psychogenically based movement disorders. The present research suggests that the 'yips' share similarities with both performance afflictions. A number of issues should be taken into account when conducting this research. At present, research investigations have tended to take place from a single discipline perspective. For example, researchers have examined the problem from a solely neurological

perspective or perhaps from a psychological perspective. On very few occasions have researchers combined their knowledge to produce multi-disciplinary research which may answer these questions from a number of different perspectives. It may be interesting to see what, if any changes occur in the basal ganglia region of the brain after the occurrence of psychologically significant life events from a longitudinal perspective, with individuals who display the personality traits illustrated in this thesis. A recent review of the dystonia literature speculated that there could be a close link between dystonia and emotion (Lim et al., 2001). Specifically, it was thought that the basal ganglia and frontostriatal system generally may serve as an interface between motor and emotional memories, as it integrates limbic, proprioceptive, and sensorimotor inputs to create emotionally and functionally appropriate voluntary movements. Previous research has suggested that damage to the basal ganglia region of the brain is a causal mechanism in focal dystonia. Until researchers from different fields combine their knowledge, these questions will not be answered. Only limited inference can be made looking from a solely psychological perspective, clearly, a combination of research fields is required to take the next step forward in understanding the aetiology of these complex movement problems.

A further recommendation for future research is to explore why some individuals experience the ‘yips' long-term whereas others do not. Applied experience informs us that certain individuals have experienced ‘one-off bouts of the "yips', yet they haven't developed the symptoms long-term. For instance, a cricket bowler might bowl a series of balls where the ball doesn't just doesn't seem to come out of the hand. However, the following over, it would appear that the experience was nothing more than a one off as their bowling returns to normal. A high profile case in point was the recent Ashes series between England and Australia, where Steve Harmison, England's opening bowler bowled the first ball of the match to first slip, which was called a

'wide'. It could be that these individuals have different levels of the personality constructs outlined earlier. For instance, it might be that these individuals have lower levels of obsessional thinking and the propensity to reinvest which means that the problem does not become long-term. Our understanding of the phenomenon would be greatly advanced if future research can carry out such studies.

Whilst this thesis has shown EFT to be an effective treatment in the two cases presented, a number of other questions need to be addressed as there were a number of limitations identified. Firstly, it is vitally important that future investigations explore the role of EFT compared to other modes of intervention such as CBT, counselling, or psycho-analytical therapy. At present it is difficult to assess which is the preferred mode of therapy, therefore, this question can be addressed using appropriate control conditions. In addition, investigations should also try to control for the levels of expertise of the practitioner dealing with the problem and also avoid other experimenter or Hawthorne effects. It was highlighted in study 4 that the therapist delivering the intervention had over 20 years of clinical experience. This would have undoubtedly contributed to the success of the intervention, therefore it is suggested that only experienced individuals should be able to work on treating the 'yips'. Another area which needs to be addressed within the role of EFT is validating the tapping points used. Evidence showing a marked difference between acupuncture points and non-acupuncture points in terms of electrical resistance of the skin (Bergsmann & Wooley-Hart. 1973; Cho, 1998; Cho & Chung, 1994; Liboff, 1997; Syldona & Rein, 1999) is, in turn, consistent with the notion that the meridian based therapies may derive their special therapeutic properties from stimulating specific acu-points (Callaghan. 1995; Gallo, 1999). Until these kind of comparisons are made under suitably controlled experimental conditions, the mechanisms underpinning EFT and the effectiveness of the intervention are open to debate.

7.3 THESIS LIMITATIONS AND DELIMITATIONS

This thesis has answered a number of questions regarding the 'yips' experience, whilst also provoking further questions for researchers to explore. Undoubtedly, research examining the 'yips' should utilise multi-disciplinary approaches which will serve to answer questions from a number of angles. On a psychological level, it is suggested that the "yips' may be caused by the occurrence of psychologically significant life events. Neurologically, it is implied that the occurrence of this event may disrupt the functioning of the basal ganglia (Lim et al., 2001). It is impossible to suggest whether this was the actual mechanism underpinning the 'yips', as this thesis has used a psychology framework to answer the research question. Therefore, by using a combination of research fields, more solid explanations will be provided.

A number of limitations were prevalent within the thesis. The major limitation was that participants self-selected themselves into the investigation. Whilst appropriate measures were put in place to ensure that those taking part were actual 'yippers', it could not be ruled out that some participants may have been included in the thesis who did not suffer from the problem. A further limitation was the role of bias in study 2, however attempts were made to ensure bias was acknowledged so that the data remained transparent. A final limitation related to the single subject case design in study 4. Firstly, only one data collection took place prior to the interventions. It would have been a more solid research design had several pre-intervention measures taken place. Secondly, it would be more appropriate if a multiple baseline approach could be used. It was impossible to generalise or suggest cause and effect as a result of utilising the one subject.

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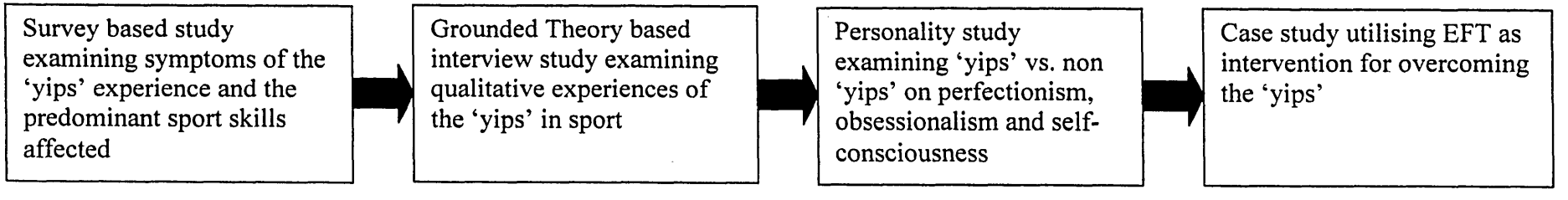
Flow Diagram of Ph.D. Thesis

Study 1	Study 2	Study 3	Study 4
Time Line for Studies			
2003/2004	2004/2005	2005	2005/2006
Time Taken to Collect Data			
14 months	9 months	6 weeks	6 months



Appendix 2

Sample questionnaire sent to BASES sport psychologist

The 'yips' in sport survey

t *Sheffield Hallam University*

The Centre for Sport and Exercise Science

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Dear colleagues,

To date, there is a limited understanding of the 'yips' in sport, why it occurs and the sports which it affects, as it has only been empirically researched in golf (McDaniel et al., 1989; Sachdev, 1992; Smith et al., 2000; Smith et al., 2003) and cricket (Bawden & Maynard, 2001). Anecdotal evidence from darts, tennis and snooker would suggest that the 'yips' are more prevalent that empirical research has shown. As a result, applied techniques have not been developed to help professional and amateur athletes overcome the problem.

Over the next few months it is our intention to conduct a survey of sports in which the 'yips' occur. To attain an opportunistic sampling frame of sports, it is important that BASES Accredited Sport and Exercise Psychologists within the UK report their experiences of individuals suffering from the 'yips' from their individual consultancies. The small survey is three questions long so it won't take more than a couple of minutes to complete. To maintain client confidentiality, we only ask that you provide generic details of the sports in which you have come across this phenomenon, and the characteristics which were displayed. Your anonymity will be ensured at all times.

Kind regards

Mike Rotheram
Principle Investigator

An examination of the 'yips' in sport

Welcome to the 'yips' in sport survey. My name is Mike Rotheram, and I am conducting doctoral research at the Centre for Sport and Exercise Science at Sheffield Hallam University into the 'yips' in sport. If you have ever experienced the 'yips' in sport or you are interested in what the 'yips' are, then please read on.

The aim of this survey is to provide some background information into the 'yips' across a variety of sports so that effective treatments can be designed and implemented in the performance situation. At present, there is limited understanding of how to treat the 'yips' and as a result, athletes often find themselves performing at a lower level than previous, or they end up retiring from their sport.Upon completion of this questionnaire, I would like to give you the opportunity to take part in further studies if you feel it would be beneficial to you. For instance, if you experience the 'yips' in a sport such as golf, then you might wish to take part in any treatment work we do. There is the potential that your yips *i* are reduced, if not removed completely.

If you haven't experienced the 'yips', we would still like you to complete the survey, as your data will provide general derr information into how prevalent the 'yips' are. If you are someone who doesn't experience the 'yips', then the questionnain approximately 2 minutes to complete. The information which you provide is just as important as the general demographic information (i.e., the prevalence of the 'yips' in your sport) we obtain can then be used to diagnose what causes the 'yips'

If you have experienced the 'yips' in a sport, then the survey will take approximately 10 minutes to complete.

May we take this opportunity to thank you for your co-operation with the research, and we will treat your results with the : confidence.

Before proceeding please read our Privacy Policy - Disclaimer - Copyright information.

THE 'YIPS' IN SPORT SURVEY

Important information.

Please answer each question by entering a tick inside the box.
For example:

Have you ever heard of the YIPS in sport?

C NO

<• YES

You may now proceed with the questionnaire.

A. Have you ever heard of the YIPS in sport?

r NO

G YES

I

i

Information Sheet - IMPORTANT YOU READ THIS FIRST!

The term 'YIPS' has received widespread attention in the popular press over recent years. Sport stars from golf, cricket, t darts have all been affected by the YIPS. The aim of this survey is to try and find out unanswered questions surrounding At present, it is not understood how prevalent or what causes the 'YIPS' to occur in sports such as cricket, darts, tennis a quite conceivable that the 'YIPS' are present in other sports too. There are also conflicting arguments as to what causes to occur. With your help, we will add to the growing database of literature on the 'YIPS' in sport. The findings from this su then hopefully be used to help find the root cause(s) of the problem so that effective interventions can be developed that sports people who are affected with this problem.

Before you participate in this survey please read the information below and then answer the question on the next page. T then lead you onto sections A and B or section C of the survey.

Yips definition:

The 'YIPS' has been defined as a long-term movement disorder consisting of involuntary movements that occur in the co execution of finely controlled, skilled motor behaviour (McDaniel et al., 1989).

Practical Sporting Examples:

Gavin Hamilton and Cricket bowling:
"I don't know what to do. The stumps look 60 yards away and when I bowl I've utterly no control over the ball" (The Mail (July 7th, 2002, page 101)

Eric Bristow and Darts:
At the pinnacle of his career he suddenly developed a problem. When his arm should have thrown the dart it wouldn't let weird, frightening. There are a lot of people around who are timid and lack confidence that you could understand this sor happening to, but me? I have two bowls of confidence for breakfast every day!"
(The Guardian, March 31st, 1998, page 16).

Bernard Langer and Golf:
" The YIPS is a jerky, uncontrolled putting stroke that sends scores soaring. At one point I was yipping so badly that I fou from three feet and actually hit the balltwice"
(http://www.peoplejustlikeus.org/Sports/Bernhard_Langer.htm)

David Lloyd and Tennis:
"There are two things that happen. Firstly, you find it very difficult to toss the ball (before serving). Also, your legs turn to you can't run. You can't get the ball out of your hand sometimes. You actually imagine the ball is stuck in your hand. It's a feeling because there are all these people watching and you can't throw it up!" (http://newssearch.bbc.co.uk/sportacademy/hi/sa/treatment_room/features/newsid_3035000/3035268.stm)

What other things could the 'yips' be?:

- Inability to perform a certain part of your sport which you could previously perform with ease (e.g., a forehand in t
- An extreme fear of performing which causes severe panic symptoms
- An extreme lack of control
- A long term movement problem
- Experiencing a jerk, tremor, twitch, trembling or freezing on a certain aspect of a repetitive skill (i.e., something w performed repetitively)

Click to continue

SECTION A

* Please complete all required fields.

Last Name:* _____ First Name:* _____

Gender:* ○ Male ○ Female Age:* _____ (years)

1. Please state the sport in which you first experienced the YIPS: .*
Please select If you have selected 'Others', please specify your sport here: _____

2. Please state the number of years you have been playing this sport* _____ (years)

3. Are you still performing the YIPS affected skill?*
- ○ No (If 'No', go to question 4)
- ○ Yes (If 'Yes', go to question 5)

4. What is the reason you are no longer performing the YIPS affected skill?

5. On average, how many times per week do or did you practice?*
- ○ Never
- ○ Less than once a week
- ○ Once a week
- ○ Twice a week
- ○ More than three times per week

6. On average, how many times per week do or did you compete?*
- ○ Never
- ○ Less than once a week
- ○ Once a week
- ○ Twice a week
- ○ More than three times per week

7. Please indicate the number of years you have played your sport at the following levels:*
- _____ Social
- _____ Club
- _____ City
- _____ County
- _____ National
- _____ International

8. How long have you or did you have the YIPS?*
_____ Months _____ Years

9. Prior to experiencing of the YIPS, did you consider yourself to be good at the skill that is affected?*
- ○ No
- ○ Yes

10. Prior to experiencing the YIPS, please state how important the YIPS affected sport is or was to your life?*

- ○ Not at all
- ○ Somewhat
- ○ Moderately important
- ○ Important
- ○ Most important

---

11. Do you remember the situation in which you **first** experienced the YIPS?*

- ○ No, (please go to question 12).
- ○ Yes (If 'Yes', in what situation did you first experience the YIPS).

- ○ High pressure competition
- ○ Leisure game
- ○ Practice
- ○ Other please specify. [ ]

Please provide specific details as to what happened.

[ ]

---

12. Do or did the YIPS occur every time you play or played your sport?*

- ○ No
- ○ Yes

Click to submit

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SECTION B:

! This section of the survey relates to your experiences of the 'yips' and whether you have experi(| in sports other than the sport mentioned in Section A.

I
| " Please complete all required fields.

j 1 Please provide specific details as to when, where, and what happens when you experienced the YIPS.*

vmbnmmghmkghmhj fm h j , mhj f ,

Symptoms of the 'yips' experience/es

2. Which of the following 'Physical' feelings do you notice when you experience the YIPS?'
(Tick all that apply in the appropriate boxes, i.e., Other: please specify.....)

Feelings:

Jerk:	***F***
Tremor	**r**
Freezing	**r**
Tensing of the affected muscles	**r**
Stomach sinking	**r**
Tingling in the hands and feet	**r**
Chest pain	**r**
'Palpitations	**r**
Trembling	**r**
Inability to perform the skill	**r**
Other	**r**
None of the above	**r**

'heart flutter, extra heart beats or heart rhythm abnormalities.

If 'Other', please indicate the physical symptom experienced for Cricket below.

3. Do you notice/experience any of the following psychological symptoms when you have/have had the YIPS?*

(Tick** all that apply **in the appropriate boxes, i.e., Other: please specify.

Psychological Symptoms

Breathlessness	**p**
Self focus	**r**
Distraction from the task	**r**
Dizziness	**r**
Hot and cold flushes	**r**
Sweating	**r**
Faintness	**r**
Feelings of unreality	**r**
Lack of control	**r**
Fear of the situation	**r**
Personal embarrassment	**r**
Intense anxiety	**r**
Excessive concern with what others are thinking	**r**
Disorientated	**r**
Other	**r**
None of the above	**r**

If 'Other', please indicate the psychological symptom experienced for Cricket below.

4. Do you think your YIPS problem is/was initially a physical symptom (response to question 2) followed by a psycholog
j reaction (response to question 3) or a psychological symptom followed by a mental reaction? *

| ***(Please specify by ticking the option that best reflects your experiences. For example: in golf you might tick thi suggests your 'YIPS problem is initially a physical symptom followed by a mental reaction):***

Symptom	Sport Affected: Cricket
Physical symptom followed by mental reaction	***c***
Mental symptom followed by physical reaction	***r***
Not sure	***r***

| SECTION B: 'YIPS' SITUATIONS: Part 1

i
j This section will identify to what extent you experience the YIPS in **Cricket**. Please rate each experience on the 1-7 sc<
' follows:

5. To what extent did the YIPS occur in practice? '

Sports affected	Never occurred			Sometimes occurred		Alway occur
Cricket	1	2	3 r	4	5 r	6 r

6. To what extent did the YIPS occur when you were playing against or with people you didn't know?

Sports affected	^ever occurred			Sometimes occurred		Alway occur
Cricket	1 r	2	3 r	4	5 r	6

7. To what extent did the YIPS occur when you were playing for something meaningful (eg cup, league, compet

Sports affected M	^ever occurred			Sometimes occurred		Alway occur
Cricket	1		3 r	4	5	6

8. To what extent did the YIPS occur when strangers were watching?*

Sports affected r	Never occurred			Sometimes occurred		Alway occur
Cricket	1	2 r	3	4 ff	5	6 r

9. To what extent did the YIPS occur when a significant other or member of your family was watching? *

Sports affected	Never occurred			Sometimes occurred		Alway occur
Cricket	1 r	2	3 r	4	5	6 r

SECTION B: 'YIPS' SITUATIONS: Part 2

Similarly, for Cricket , consider the following circumstances and then reflect on the extent to which the statement is true, rate each statement on the 1 - 7 scale as follows.

10. I got 'worked up' thinking about what had happened.*

Sports affected	Not at all			Somewhat		Very t so
Cricket	1	2	3	4	5 r	e r

11.1 was self-conscious about the way I performed.*

Sports affected	Not at all			Somewhat		Very r so
Cricket	1		3 r	4	5	6 r

12. I was alert in changes in my mood.*

Sports affected	Not at all			Somewhat		Very r so

Cricket	1 ○	2 ○	3 ○	4 ◉	5 ○	6 ○	7

13. I felt intense anxiety when I performed.*

Sports affected	Not at all			Somewhat			Very r so
Cricket	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7

14. I wasn't able to focus on the task at hand.*

Sports affected	Not at all			Somewhat			Very r so
Cricket	1 ○	2 ○	3 ○	4 ◉	5 ○	6 ○	7

Cricket Overview

Cricket	Not very helpful			Average			Very hel
Medication	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○

e) Relaxation*

○ Not attempted it.

○ Yes

Cricket	Not very helpful			Average			Very hel
Relaxation	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○

f) Music*

○ Not attempted it.

○ Yes

Cricket	Not very helpful			Average			Very helpf
Music	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○

g) Hypnosis*

○ Not attempted it.

○ Yes

Cricket	Not very helpful			Average			Very helj
Hypnosis	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○

h) Other

Other (please provide as much information as possible)	Not very helpful			Average		
	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○

2. Are there any other daily activities outside your sport that are/were affected by symptoms similar to the YIPS?*

○ No

○ Yes

If 'Yes', please list other activities which are/were affected by symptoms similar to the YIPS:

3. Has your doctor ever prescribed the use of antidopaminergic agents (for example: gastrobid continus, gastroflux, gas maxolon, metramid, parmid and primperan) to relieve symptoms of nausea & vomiting, stomach pain & bloating, loss of a persistent feeling of fullness after meals?*

C No

Yes

4 Has your doctor ever diagnosed you or a close family member with any of the following movement disorders (please appropriate boxes, yes or no)?*

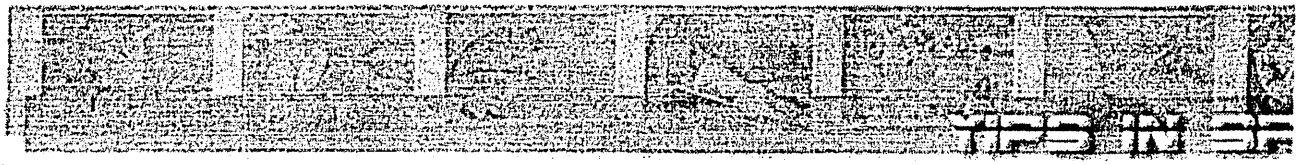
Movement disorder	You		Close family member	
	No	Yes	No	Yes
Parkinson's disease				
Parkinsonism				
Parkinson-plus syndromes				
Huntington's disease				
Wilson's disease				
Inherited ataxias				
Tourette syndrome and other tic disorders				
Essential tremor				
Restless leg syndrome				
Dystonia				
Stroke				
Cerebral Palsy				
Hand tremor				

5. The next stage of the research is an interview during which your answers will be explored in greater detail. We think i worthwhile and exciting, as you will contribute substantially to what is currently known about the YIPS. More importantly results will help in designing an effective intervention, which can treat YIPS sufferers.*

C No, I would not like to participate

C Yes, I would like to participate

.W,e Rothenam X The Centre for Sport and Exercise Science. Sheffield HalJarn University 200-4-5



SECTION C:

Sheffield Hallam University

Thank you for your time and effort in completing this questionnaire.
The information you have given will contribute further to our understanding of the YIPS in sport.

Thank you for completing the survey. Click to close.

- Please complete the following section if appropriate.

If you have experienced the YIPS in any other sport please select from the options below:

Please select | If you have selected 'Others', please specify your sport here

Click to continue

Please complete the following section if you know another person who has suffered from the YI

* Please complete all required fields.

Please state the sport in which this person suffers from the YIPS:*

Please select | If 'Others', please specify:

How long has this person had the YIPS (please leave blank if not sure) (years)

Please indicate whether we can contact you about getting in touch with this individual?*

- ○ No.
- ○ Yes. (if Yes, please complete the rest of this section)

Address:*

City:* | County: | Post Code:*

Tel Home/Mobile: | Tel Work: | E-mail:

Click to continue

Appendix 4

Sample data from survey

id	user_id	1.when,wh	Jerk (1)	Tremor (2)	Freezing (3)	Tensing of the affected muscles (4)	Stomach sinking (5)
47	52	in golf com	1	0	0	0	0
157	166	Jerk in righ	1	0	0	0	0
58	64	Usually tak	1	1	1	1	1
103	115	Putting (un	1	0	0	1	0
102	114	My yips sta	1	0	0	1	0
80	87	I experienc	1	0	0	1	0
131	140	detailed	1	0	0	0	0
133	142	played dart	1	0	1	1	0
14	15	could not p	1	0	1	1	1
67	73	I started to	1	0	0	0	0
81	89	Only ever e	1	0	1	1	0
44	51	It happens	1	0	0	0	0
36	40	feels like	1	0	0	0	0
130	139	When putti	1	0	0	0	0
161	170	Started 1 y	0	0	0	1	0
152	159	I am unabl	1	0	0	0	0
151	158	I suffer fror	1	1	1	1	1
29	36	putting.	1	1	1	1	1
120	130	My putting	1	0	0	1	0
38	42	Cant put	1	1	1	1	0
119	128	Anxiety for	1	0	0	1	0
107	119	this happer	1	0	0	1	1
132	141	loss of cofi	1	1	1	1	0
41	48	In putting, a	1	0	0	0	0
91	102	Whilst wari	1	1	0	0	0
85	93	Around the	1	1	1	1	1
73	79	when facec	1	0	0	0	0
145	153	can't take p	1	0	1	0	0
257	272	It happens	1	0	0	0	0
114	123	On the gre	1	0	1	0	0

Tingling in the hands and feet (6)	Chest pain (7)	Palpitations (8)	Trembling (9)	Inability to perform the skill (10)	Other (11)	none (12)
0	0	0	0	0	0	0
0	0	0	0	0	0	0
1	1	1	1	1	0	0
0	0	0	0	0	0	0
0	0	0	0	1	1	0
0	0	0	0	1	0	0
0	0	0	0	1	0	0
0	0	0	1	1	0	0
1	0	1	1	0	0	0
0	0	0	0	0	0	0
0	0	0	0	1	0	0
0	0	0	0	1	0	0
0	0	0	0	1	0	0
0	0	0	0	1	0	0
0	0	0	0	1	0	0
0	0	0	0	1	0	0
1	0	0	1	1	0	0
0	0	0	1	1	0	0
0	0	0	0	1	0	0
0	0	0	1	1	0	0
1	0	0	1	1	0	0
0	0	0	0	1	0	0
0	0	0	1	1	0	0
0	0	0	0	0	0	0
0	1	0	0	1	1	0
0	0	1	0	1	1	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0

When, where and what happens when you experience the ‘yips’ - example cricket data.

Running in to bowl the cricket ball, 1 'forget' what is necessary to get the ball down the other end, let along cause the batsmen any problems. It appears as if the mind completely forgets the mechanics involved that have been learned over 20 years of playing

Unable to relax the muscles and an overall feeling of tension throughout the body.

Bowling cricket ball in competition and practice.

Feeling of nervousness, tension and apprehension about performing the skill."

When I am bowling I have difficulty releasing the ball such that either a slow-medium head high full toss occurs or the ball bounces 2-3 times. Usually happens early in the bowling spell.

Bowling - normal run-up but at the point of delivery I cannot let go of the ball and it ends up bouncing by my feet and rolling to the batsman. I have to really concentrate on letting go of the ball - 1 find that holding the ball across the seam helps.

Playing Club village cricket, coming back from cricket, and couldn’t control where i was going to land the ball

Cricket - from about the age of 18, I could not let go of the ball when bowling started in practice then spread to matches

It used to happen whenever I attempted to bowl over. Was fine with running in rhythmically but couldn't get my body to pivot around at the same speed my body was going through the action and my arm was going through.

As I run in I seem to forget how to run - my quads feel numb, my run up stutters and I feel as if I am running through treacle

What happened -- was embarrassing! It was like a seven year old bowling for the first time -- no real control of line or length. I am currently trying to rectify it by gripping the across seam very tightly with my forefinger and thumb. It definitely helps. But when I revert to 2 fingers along the seam, the yips symptoms return.
When I am about to bowl I suddenly start feeling very nervous and when I start my run up I feel very tense and worried about performing badly and letting down my team mates.

"Playing cricket, I was a good bowler up to age of 23. I'd bowled very well at junior level and had been opening bowler for my local club as well.
I hadn't played for a couple of years, and went to a new club. Was out of practice so took nets and was ok. Upon going out to the middle of the cricket pitch and starting my run up to bowl all seems ok. Upon point of delivery of the ball I bowl it very wide, not every ball but certainly three out of six."

Example Coif data

When I'm putting my right arm jerks so that the putter will move left and right before I strike the ball.

At first, only short putts. Now longer putts (when using a normal right-handed putter) and some chips. The practise stroke feels perfect, but when the ball is in the way (ie. during the actual shot) just before the point of impact my hands involuntarily disrupt the stroke, hitting the ball anywhere but the hole. It feels as though my hands are fighting against what 1am trying to achieve.

Started missing short putts for no obvious reasons, it didn't happen all the time though

1only experience yips when playing golf. Chipping definitely, although the deceleration in my swing sometimes extends into longer shots - pitching and the like, 'touch' shots. During a normal round I will hit one good chip shot, about 60% of chips very poorly and the remainder will not be hit well but give a reasonable result. Even when practising my chipping, while making good contact with the majority of shots they tend to be short of the target due to the deceleration in my swing. My putting was originally unaffected. I returned to playing golf seriously about a year ago and in the last six months, on longer putts I have experienced the same lack of confidence and 'jerk' in my stroke.

Could not put at all, arms were really stiff almost frozen like, tensing up kind of a jarring feeling.

Very short putts which are usually under 18 inches; missed, some under 12 inches;

Driving, frozen over tee

When chipping, I would shank the ball to the right. That is, instead of hitting the ball in the centre of the club face, I would make contact with the hosel or bottom of the club shaft. This happened with terrifying frequency for years until I read about a fairly simple cure which has been 98% successful.

Occasionally I am unable to take the putter back without it jerking; evenif taken back smoothly occasionally I then find it difficult to hit the ball.

Could not get the ball to the hole on 4ft puts then knocked the next put past byabout 3 ft. On all putts of every round. Inability to take the putter back.
I would push my puts to the right, even from 2 feet.

When I was younger I played pub team darts and had trouble hitting the board until I had a couple of pints and thjis settled the nerves and was a good player
experienced uncontrolled jerk whilst putting

During putting. Problems start on the backswing. Cannot strike the putt. The nearer the hole the worse it is. I can easily miss a 12 inch putt.

Example darts data:

When I use to step up to the ockey and try and throw the dart i use to jerk my hand and try and release the dart, it would go anywhere it felt like 1couldnt control my action

Usually during the Winter months. I played Table Tennis at club level and I felt that maybe the nervous side of that sport was getting to me when I played darts. I don't ever remember having the yips during the summer months, either during practice or match play.

1 WAS PLAYING IN A DARTS LEAGUE MATCH. WHEN IT WAS MY NEXT THROW I ADDRESSED THE BOARD IN MY USUAL STANCE AND TOOK AIM. WHEN I FELT READY I ATTEMPTED TO RELEASE THE DART BUT FOUND THAT I COULD NOT LET GO. I TOOK MY TIME AND TRIED AGAIN BUT COULD NOT RELEASE THE DART. WHEN I TRIED AGAIN I WAS ABLE TO RELEASE THE DART BUT NOT IN ANY CONTROLLED MANNER.I HAD THE SAME EXPERIENCE IN VIRTUALLY EVERY GAME I PLAYED THEREAFTER.

During the delivery my arm would jerk and would not straighten to release the dart. The yip was originally an occasional occurrence but eventually became the norm. It is less likely to happen after consuming a few pints of lager.

First came on while practicing at home (1992) for a match in the local league. All of a sudden while taking a throw found I couldn't let go of the dart, went to throw the dart, instead of the usual action of releasing the dart, hand seemed to hold onto the dart making me fall forward with the dart then releasing at the last moment missing the board. Tried again and the same thing happened, the more I concentrated the worst it got, I knew of Dartitis and that was the first thing that came into my mind. That evening went to play the match, stood on the stage and found it was 10 times worst than at home. After that night persevered for the rest of the season, was in two finals prior to it coming on which I had to attend one was a doubles match and one a single. Tried throwing with my left hand, tried throwing really drunk, tried not playing for a month, but just couldn't shake it off. Gave up after two years, came back to the sport after a four year brake, throwing okay but not as natural as it was prior to Dartitis

It was best of 301 best of 3, it went to 1-1 and when I went for the double start 1just couldn't let go. I didn't feel particularly nervous, but the dart just wouldn't go.

The first time was in 1986 playing in a local comp I was playing ok got through a few rounds then I couldn't let go lost and went home this continued for about two years and my game went down from playing county A to just managing super league entry level A few months before all this I broke my collor bone playing football.

At an open tournament all of a sudden my arm would not let me let the dart go and i just had no control of the darts

Appendix 5

Informed consent for study 2

Sheffield Hallam University

Faculty of Health and Wellbeing Research Ethics Committee
Sport and Exercise Research Ethics Operating Group

INFORMED CONSENT FORM

TITLE OF PROJECT: Causal mechanisms underpinning the 'yips' in sport

The participant should complete the whole of this sheet himself/herself

Have you read the Participant Information Sheet?	YES/NO
Have you had an opportunity to ask questions and discuss this study?	YES/NO
Have you received satisfactory answers to all of your questions?	YES/NO
Have you received enough information about the study?	YES/NO

To whom have you spoken?

Do you understand that you are free to withdraw from the study:

- at any time
- without having to give a reason for withdrawing
- and without affecting your future medical care YES/NO

Have you had sufficient time to consider the nature of this project? YES/NO

Do you agree to take part in this study? YES/NO

Signed..... ..... Date.....

(NAME IN BLOCK LETTERS).....

Signature of Parent / Guardian in the case of a minor

PTO

FOR USE WHEN STILL OR MOVING IMAGES WILL BE RECORDED

Consent to scientific illustration_____

I hereby confirm that I give consent for photographic and/or videotape and sound recordings (the 'material') to be made of me, I confirm that the purpose for which the material would be used has been explained to me in terms which I have understood and I agree to the use of the material in such circumstances, I understand that if the material is required for use in any other way than that explained to me then my consent to this will be specifically sought.

1. I understand that the material will form part of my confidential records and has value in scientific assessment and I agree to this use of the material.

Signed..... Date.....

Signature of Parent / Guardian in the case of a minor

2. I understand the material has value in teaching and I consent to the material being shown to appropriate professional staff for the purpose of education, staff training and professional development.

Signed..... Date.....

Signature of Parent / Guardian in the case of a minor

I hereby give consent for the photographic recording made of me on..... to be published in an appropriate journal or textbook. It is understood that I have the right to withdraw consent at any time prior to publication but that once the images are in the public domain there may be no opportunity for the effective withdrawal of consent.

Signed..... Date.....

Signature of Parent / Guardian in the case of a minor

CONFIDENTIAL

Sheffield Hallam University

Faculty of Health and Wellbeing
Research Ethics Committee

Sport and Exercise Research Ethics Operating Group

APPLICATION FOR APPROVAL OF RESEARCH

In designing research involving humans, principal investigators should be able to demonstrate a clear intention of benefit to society and the research should be based on sound principles. These criteria will be considered by the Ethics Committee before approving a project. ALL of the following details must be provided, either typewritten or word-processed preferably at least in 11 point font.

Please either tick the appropriate box or provide the information required.

1. Date of Application	19/4/2006
2. Anticipated Date of Completion	30/8/2006
3. Title of Investigation	Causal mechanisms of the 'yips' experience
4. Subject Area	Psychology
5. Principal Investigator **Name** **Email address** **Telephone/mobile number** **Student number**	Mike Rotheram m.rotheram@shu.ac.uk 0114 225 5634/07734 678778 112/808

6. Is this

6.1 a research project? [✓]

	Module Name	**Module Number**
6.2 an undergraduate project? [ ]		
6.3 a postgraduate project? [ ]		

7. Director of Studies/ Supervisor/Tutor	Professor Ian Maynard/Dr Mark Bawden/Dr Owen Thomas

8. Intended duration and timing of project	May 01st to September 01st 2006.

9. Location of project (If parts are external to SHU, provide evidence in support in section 19)	They will take place on Collegiate Crescent in the consultancy room A206.

10. Is this study	
10.1 Collaborative? [ ]	**If yes please include appropriate agreements in section 19**
10.2.1 Replication [ ] of	
10.2.2 New [✓]	

11. Participants	
11.1 Number	3-6
11.2 Rationale for this number: (eg calculations of sample size)	It is difficult to estimate a sample size based upon the methodology being used in this interview context, that being a Grounded Theory Based approach (Strauss and Glasser, 1978). The sample size will be deemed appropriate when saturation of the data phenomenon has occurred (i.e., no new emerging themes appear).
11.3 Criteria for inclusion and exclusion for example age and gender:	Participants should play golf, darts or cricket and been experiencing the 'yips' (i.e., an involuntary disturbance in skill execution) for more than 12 months.
11.4 Procedures for recruitment for example location and methods:	Recruitment will take place via the database of 'yips' affected individuals from study 1 (i.e., a survey of 'yips' affected individuals). Study 1 required individuals to 'tick' a box 'yes' or 'no' as to whether they wished to participate in further studies examining the 'yips'. Participants will be selected at random based upon the response they submitted.
11.5 Does the study have *minors or ‡vulnerable adults as participants?	Yes [ ] No [✓]
11.6 Is CRB disclosure required for the Principal Investigator? *(To be determined by risk assessment)*	Yes [ ] No [✓] If yes, is standard [ ] or enhanced [ ] disclosure required?
11.7 If you ticked 'Yes' in 11.5 and 'No' in 11.6 please explain why:	

*Minors are participants under the age of 18 years.
‡Vulnerable adults are participants over the age of 16 years who are likely to exhibit:
a) learning difficulties
b) physical illness/impairment
c) mental illness/impairment
d) advanced age
e) any other condition that might render them vulnerable

The yips have been defined as a psycho neuromuscular impediment affecting the execution of the putting stroke in golf (Smith et al., 2003). An extremely small percentage of writers (Crisp and Moldofsky, 1965; Bindman and Tibbets, 1977), musicians (Jabusch and Altenmuller, 2004), typists, telegraphers and artists (Lim et al., 2001) all experience similar performance breakdowns to the 'yips' in golf. This is based on the similarity of physical symptoms involved in skill execution. Focal dystonia affects the cheek muscles in musicians who play wind instruments and finger muscles in guitarists (Smith et al., 2003). Researchers have therefore linked the symptoms experienced by golfers to those in occupational domains (McDaniel et al., 1989; Sachdev, 1992; Smith et al., 2000, 2003). The 'yips' in golf putting manifest in various forms of physical impediment, specific to the task output (McDaniel et al., 1989; Sachdev, 1992; Smith et al., 2000, 2003; Adler et al., 2005). In cricket bowling, Bawden and Maynard (2001) indicated the pre-dominant sensation experienced was tension in the hand, and subsequently, a feeling of not being able to release the ball. Rotheram et al (2006) reported that psychological symptoms of the yips remains consistent across golf, darts and cricket, yet physical symptoms experienced were unique to task constraints. A higher percentage of golfers, darts players and cricket bowlers also perceived the 'yips' to be a psychological problem followed by a physical disturbance rather than vice versa When probed to provide their explanation of when, where and what happens during the 'yips' experience, a number of participants cited factors, outside of sport which may have contributed to the problem.

This second study has utilised a grounded theory based approach (Strauss and Glasser, 1978) to gain a greater understanding of the psychological mechanisms underpinning the 'yips'. The basis of the grounded theory interview is to start with broad, open ended questions. Following this, analysis occurs on the data where questions are asked, memos are recorded, and new insights emerge which require clarification in subsequent interviews (Richards, 2005). This process is iterative in that theory emerges once no new data themes emerge. We have so far conducted six interviews (golf, n=2; darts, n=2; cricket, n=2). Analysis of the data has revealed two emerging themes which are consistent across the sports: Significant events leading up to the 'yips' (i.e., dropped from a cricket academy, humiliated at a golf meeting, relationship breakdown) and personality characteristics (perfectionist, obsessional, self conscious) consistently emerged in stage 1. The examples highlighted were fed back into the second interview stage. Personality characteristics remained a consistent theme. In addition new insights emerged regarding the theme 'significant events prior to the 'yips" where it is postulated more subtle experiences may have links to deeper issues. One of the participants, having experienced the 'yips' referred to his confidence as shaky. However, prior to the 'yips' his confidence levels were relatively stable. The cricketer interviewed in this round of interviews related to three incidents of being dropped prior the 'yips'. Considering his stature as a former international cricketer, these events were interpreted as very distressing at the time they occurred.

If we are following a true grounded theory based approach it will require a deeper questioning style in subsequent interviews (Richards, 2005). It is quite possible that the 'yips' is a complex emotional issue which may have links to psychological trauma? Trauma is often many layered, and events which occur may link to other memories which at the time were emotionally significant (Grand, 2003). Considering the impact trauma may have on the individual, and the recall of these potentially deeper emotional causes, requires ethical approval for which appropriate control measures will be highlighted.

There is evidence appearing in dystonia research which has reported distressing/traumatic emotional events prior to onset of dystonia. Schmidt et al. (1994) indicated the presence of profound emotional events prior to the onset of focal dystonia in two women. Similarly, Schweinfurth et al. (2002) indicated that 21% of individuals experienced a major life stress prior to the onset of spasmodic dysphonia, a disorder very similar to those experienced in occupational tasks. Clinical patients often report emotional events prior to the onset of dystonia (C Adler, personal communication).

The benefits of delving deeper in subsequent interviews will reveal whether the 'yips' has a traumatic/emotional cause. Subsequently, individuals can who are afflicted with the problem can correctly referred to an appropriate practionner (i.e., clinical psychologist, psycho-therapist).

13. Details of the research design and protocols _____

13.1 provide details.

If a Mode B support project is being proposed please state the protocols under the following headings: a. needs analysis; b. potential outcome; c proposed interventions.

This study is utilising a grounded theory approach (Strauss and Corbin, 1978). The basis of the grounded theory interview is to start with broad, open ended questions. Interviews will be transcribed by the principle investigator. Following this, data will be analysed using NVIVO (version 2). Analysis involves asking questions of the data, and recording memos where new insights emerge which require clarification in subsequent interviews (Richards, 2005). This process is iterative in that theory emerges once no new data themes emerge.

Recruitment will take place via the database of 'yips' affected individuals from study 1 (i.e., a survey of 'yips' affected individuals). Study 1 required individuals to 'tick' a box 'yes' or 'no' as to whether they wished to participate in further studies examining the 'yips'. Participants will be selected at random based upon the response they submitted.

13.2 Are these "minor" procedures as defined in Appendix I of the ethics guidelines?	Yes [ ] No K]
13.3 If you answered 'No' in Section 13.2, list the procedures that are not minor.	Recall of a potentially distressing memory.

14. Indicative methods of analysis

14.1 Provide details of the quantitative and qualitative analysis to be used,

Data is being analysed using NVIVO (version 2), A grounded theory based approach is being utilised which is an iterative process whereby the interview guide remains flexible. New emerging themes are fed into subsequent interviews until saturation occurs (i.e., no new data themes emerge).

15. Substances to be administered (Refer to Appendix V of the ethics guidelines)

15.1 The protocol does not involve the administration of pharmacologically active substances or nutritional supplements. *(Please tick the box if this statement applies and go to section 16)* [ ]

15.2 Name and state the risk category for each substance. If a COSHH assessment is required state how the risks are to be managed.

16. Degree of discomfort that participants might experience

16.1 To consider the degree of physical or psychological discomfort that will be experienced by the participants. State the details which must be included in the participant information sheet to ensure that the participants are fully informed about any discomfort that they may experience.

Potential adverse reaction to the recall of a distressing memory. For degree of risk please refer to risk assessment document 19-6X50-00L, in Appendix 1. For this experiment, the risk rating is 2, which is categorised as low.

Hazard (2) x Likelihood (1) = Risk (2, Low)

17. Outcomes of Risk Assessment

17.1 Provide details of the control measures arising out of the assessment of risk including the nature of supervision and support required during the experimental phase of the project.

General control measures:

- The principle investigator will have completed a Good Clinical Practice (GCP) course run by Dr Martin Robinson who is a principal training consultant for the National Institute of Clinical Research (please see Appendix 2 for details). The course will highlight my roles and responsibilities in clinical research according to the Institute of Clinical Health Good Clinical Practice.
- The participant will be explicitly informed that in the unlikely event they react adversely to any of the questions posed in the interview phase, they will be given the opportunity to be referred to a chartered clinical psychologist, whereby all costs will be absorbed by the principle investigator (see appendix 3). The letter attached in appendices 3 outlines the qualifications of the clinical psychologist and his confirmation that he wishes to take part in the study as a referral mechanism.
- Interviews will only be conducted if our referral mechanism is available for consultation post interview.

Specific control measures:

Prior to the interview participants will be:

1. Asked about their current emotional state and whether they are mentally ready to undertake the interview.
2. Informed that the content of the interview may have a negative impact on their emotional state
3. Informed that a potentially emotionally charged issue will be uncovered and explored, where questions will be asked (i.e., can you elaborate, what other incidents have occurred of this nature, how did this make you feel, what were you thinking)
4. Informed that they can withdraw prior to the interview, or, during the interview at any stage, whereby they feel the smallest indication of emotional discomfort. This will be followed by asking the client to listen to a stress management CD so they leave the room in a resourceful state.
5. Informed that if I see or hear of any visible signs of emotional distress, I will immediately call a halt to the interview. This will be followed by asking the client to listen to a stress management CD so they leave the room in a resourceful state.
6 Informed they are only to talk about events if they feel they want to
7. Informed that I will phone them 1, 3, 7 and 14 days after the interview to ensure no delayed emotional reactions have occurred during the interview.
8. Informed that in the unlikely event they react adversely to a question posed, the client will be required to listen a stress management CD immediately,
9. Informed that if they continue to feel distressed by a question posed, they can talk through the issue raised with the Chartered Clinical Psychologist we have on board (See Appendix 3) so they can gain closure on the incident causing the distress.

18. Safe System of Work

18.1 Indicate how the control measures outlined in section 17.1 will be implemented to minimise the risks in undertaking the research protocol (refer to 13.1). State the technical skills needed by the Principal Investigator to ensure safe working.

Participants will be given an information sheet outlining the nature of the interview, and the control procedures in place. They will be required to sign a document explaining that they are free to withdraw from the experiment at any time. This is in addition to the strict control procedures in place.

19. Attachments
(Place a tick in the appropriate description)

19.1 Risk Assessment(s) (Include CRB risk assessment)	[✓]
19.2 COSHH Assessment	[ ]
19.2 Participant Information Sheet	[✓]
19.3 Informed Consent Form	[✓]
19.4 Pre-Test Medical Questionnaire	[✓]
19.5 Collaboration evidence/support (see 10)	[ ]
19.6 Collaboration facilities (see 9)	[ ]
19.7 Clinical Trials Form (FIN 12)	[ ]

20. Signature
Principal Investigator

Once this application is approved, 1will undertake the study as approved. If circumstances necessitate that changes are made to the approved protocol, 1will discuss these with my Project Supervisor. If the supervisor advises that there should be a resubmission to the Ethics Committee, 1 agree that no work will^je/caijfTed-out using the changed protocol until approval has been sotighi anti formally received.

Principal Investigator

Name : Mike Rotheram (19/4/2006)

21. Approval
Project Supervisor to sign off EITHER box A OR box B as applicable.

(refer to Appendix 1 and the flowchart in appendix VI of the ethics guidelines)

Box A:

I confirm that the experimental protocol contained in this proposal is based solely on 'minor' procedures, as outlined in Appendix 1 of the HWB Sport and Exercise Research Ethics Operating Group Procedures for the Use of Humans in Research document, and therefore does not need to be submitted to the HWB Sport and Exercise Research Ethics Operating Group.

In terms of ethics approval, I agree the 'minor' procedures proposed here and confirm that the Principal Investigator may proceed with the study as designed.

Project Supervisor.....Date.....

Name.....

Box B:

I confirm that the experimental protocol contained in this proposal is not based solely on 'minor' procedures, as outlined in Appendix 1 of the HWB Sport and Exercise Research Ethics Operating Group Procedures for the Use of Humans in Research document and therefore must be submitted to the HWB Sport and Exercise Research Ethics Operating Group for approval.

I confirm that the appropriate preparatory work has been undertaken and that this document is in a fit state for submission to the HWB Sport and Exercise Research Ethics Operating Group.

Project S u p e r v i s o r . . ..Date

J

Name .....

22. Signature
Technician

I confirm that I have seen the full and approved application for ethics approval and technical support will be provided.

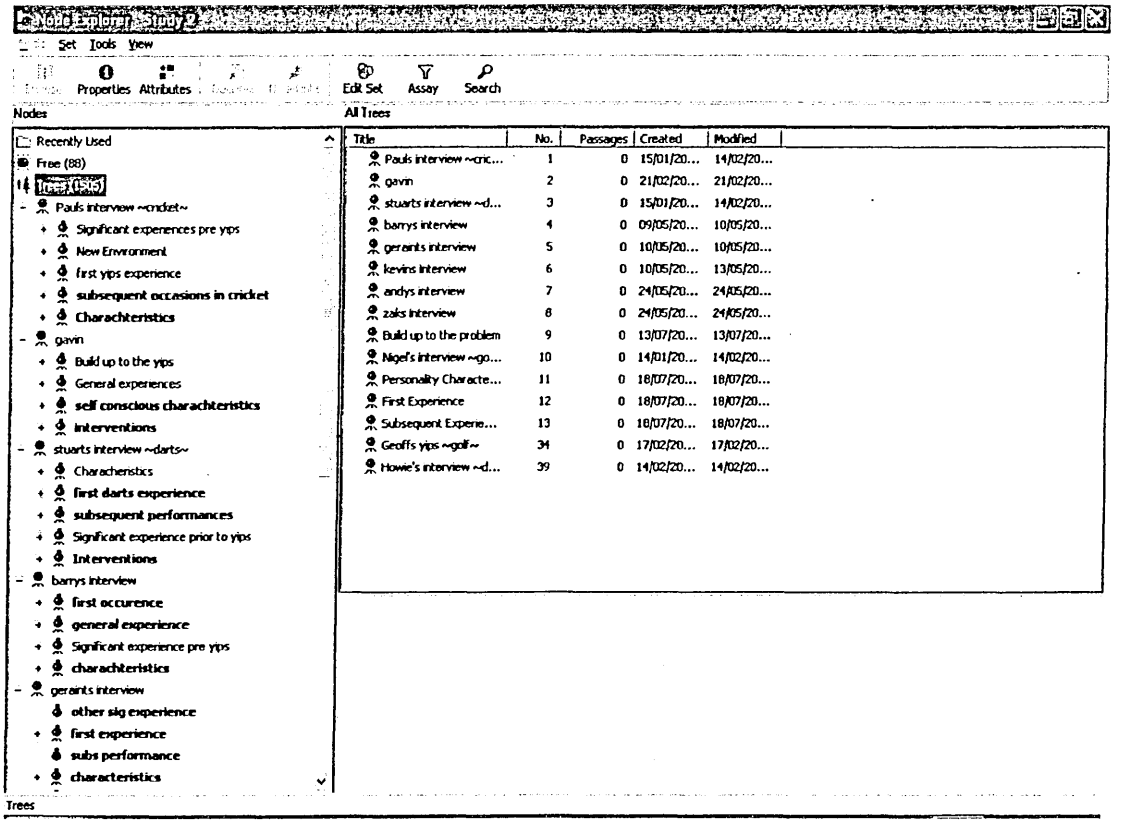
Technician.....Date.....

I

Name.....

Appendix 6

NVIVO 'print' screen examples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barrys interview 4 0 09/05/20... 10/05/20...
geraints interview 5 0 10/05/20... 10/05/20...
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Howie's interview ~d... 39 0 14/02/20... 14/02/20...
Trees

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I am writing tins memo having done the mitral coding on Howie's interview I have to say, there is somethmbg about the American's which means they open up more He just wanted to go on and on

Howie made some interesting points He referred to his yips in a similar fashion to Stuarts darts yips, in that he expenenced tension m his calf as a signal to his onset He also mentiormed his bicep became froze which meant he couldnt release the dart Interestingly, and this was something I hadnt expected, he mentionned on skill exectuion, he experienced an involuntary pulling sensation to his left This left him off balance The common demominalor with all this is that they were physical discmptions which happened during skill execution, a findmg synominous with my other interviews

Howie also referenced some emotional turmoil which took place prior to his yips beginning. He hadnt made any connection between the two things, but there were a number of triggers winch were present when the yips were at its worst He would imagine beating his ex's boyfriend. His yips were bad when his ex were present His yips went for a period but came back when he saw his ex He even stated that a number of his other friends had expenenced relationship breakdowns pnor to developing the yips Yet, he didnt make the connection

Howie also pointed out, as similar to other interviews done so far, taht he was a perfectionist, and that he wanted to throw the perfect game of darts He wouldn't be happy unless he had thrown that perfect game of darts He had an obsessional nature about his darts. Close inspection of this weekly routine wiH add to that fact. Furthermore, he was highly self conscious about his yips experience. This is similar to other yips affected individuals understandabhd he taoked about the embarrassment of having the vies and how he scrutinised

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Geoffs interview was not as fluent as the others he spoke with a nervousness in his voice, that was in between a stutter and normal speaking that is the best way I can describe it

He talked about how his yips developed immediately after moving to anew home, which took him out of his comfort zone He talked about how his yips manifested in physical symptoms, which were related to skill execution In addition, he expenenced feelings of embarrassment, self conciousness and a lack of control dunng his yips expenence

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The yips experience in bowling appears to be different to that of golf, certainly in terms of the outcome I feel this is probably related to the requirements of the skill and the fact that it is a different skill to that of gof putting m Nigels case. The pre-dominant sensations Paul expenenced were not being able to release the ball properly, resulting in beamers, waist high full tosses, or balls that bounced by his feet when he released the ball.

There were 2 things which struck me as being extremely important in this case Paul talked openly about the fact he was a confident individual in most environments However, when he moved up a level, he felt out of his comfort zone, into an environment which he did not feel confident in This was in contrast to his normal behaviours One incident which may have had a bearing on this was when Paul talked about being physically abused when he was 14 or 15 years of age He talked about not being able to leave the house? Maybe his confidence in later life in these situations was affected by this?

Another incident which occurred was when Paul was dropped by Lancashire This caused him to feel humiliated This wound was opened up by his ex Lancashire team mate whom was sledging him about the incident in the hotel. It is not known whether this directly caused the yips? Although the timing of the incident appears to tie in very closely to the onset of the problem]

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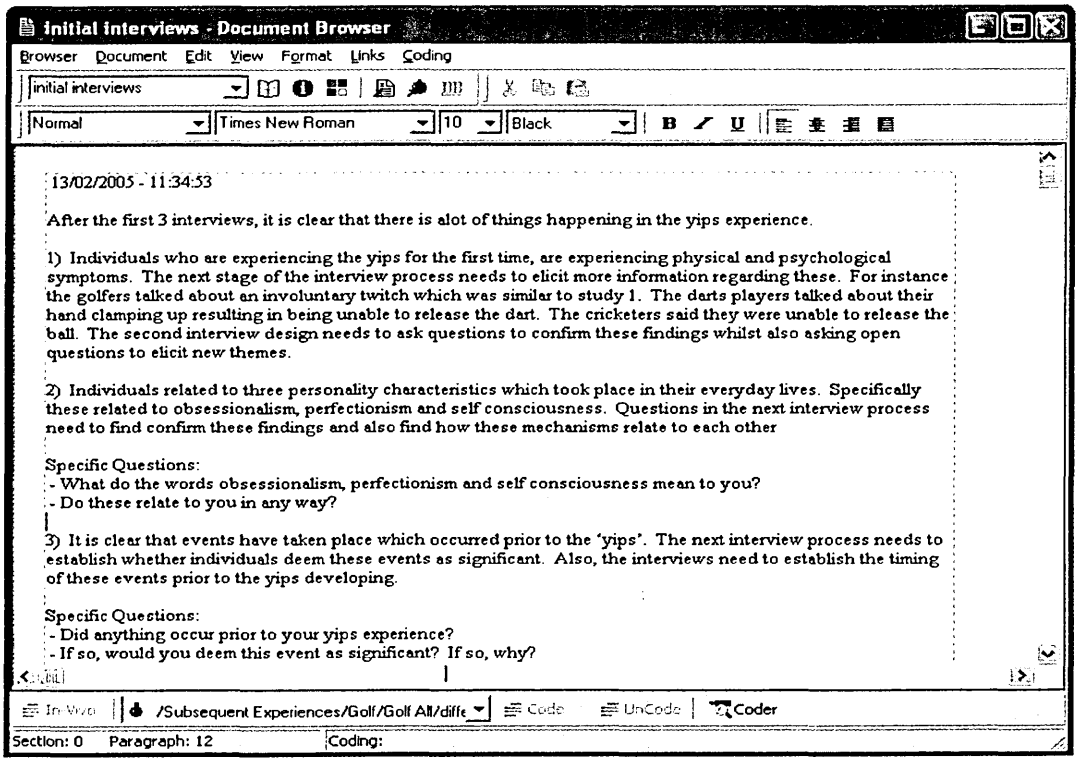
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After the first 3 interviews, it is clear that there is alot of things happening in the yips experience.
1) Individuals who are experiencing the yips for the first time, are experiencing physical and psychological symptoms. The next stage of the interview process needs to elicit more information regarding these. For instance the golfers talked about an involuntary twitch which was similar to study 1. The darts players talked about their hand clamping up resulting in being unable to release the dart. The cricketers said they were unable to release the ball. The second interview design needs to ask questions to confirm these findings whilst also asking open questions to elicit new themes.
2) Individuals related to three personality characteristics which took place in their everyday lives. Specifically these related to obsessionalism, perfectionism and self consciousness. Questions in the next interview process need to find confirm these findings and also find how these mechanisms relate to each other
Specific Questions:
- What do the words obsessionalism, perfectionism and self consciousness mean to you?
- Do these relate to you in any way?
3) It is clear that events have taken place which occurred prior to the 'yips'. The next interview process needs to establish whether individuals deem these events as significant. Also, the interviews need to establish the timing of these events prior to the yips developing.
Specific Questions:
- Did anything occur prior to your yips experience?
- If so, would you deem this event as significant? If so, why?
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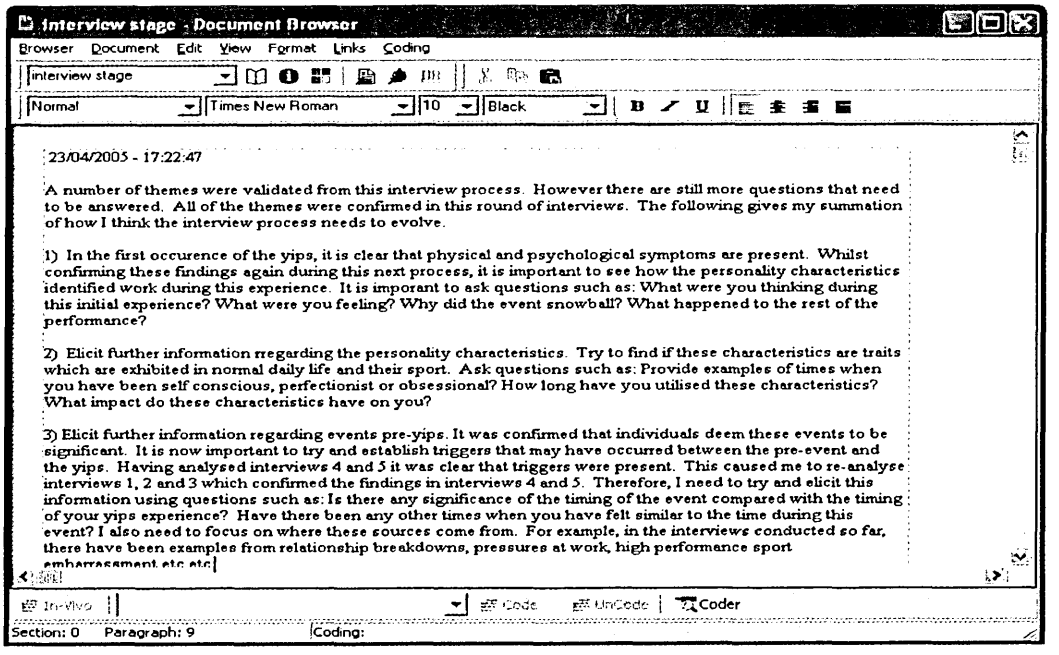
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A number of themes were validated from this interview process. However there are still more questions that need to be answered. All of the themes were confirmed in this round of interviews. The following gives my summation of how I think the interview process needs to evolve.
1) In the first occurence of the yips, it is clear that physical and psychological symptoms are present. Whilst confirming these findings again during this next process, it is important to see how the personality characteristics identified work during this experience. It is imporant to ask questions such as: What were you thinking during this initial experience? What were you feeling? Why did the event snowball? What happened to the rest of the performance?
2) Elicit further information regarding the personality characteristics. Try to find if these characteristics are traits which are exhibited in normal daily life and their sport. Ask questions such as: Provide examples of times when you have been self conscious, perfectionist or obsessional? How long have you utilised these characteristics? What impact do these characteristics have on you?
3) Elicit further information regarding events pre-yips. It was confirmed that individuals deem these events to be significant. It is now important to try and establish triggers that may have occurred between the pre-event and the yips. Having analysed interviews 4 and 5 it was clear that triggers were present. This caused me to re-analyse interviews 1, 2 and 3 which confirmed the findings in interviews 4 and 5. Therefore, I need to try and elicit this information using questions such as: Is there any significance of the timing of the event compared with the timing of your yips experience? Have there been any other times when you have felt similar to the time during this event? I also need to focus on where these sources come from. For example, in the interviews conducted so far, there have been examples from relationship breakdowns, pressures at work, high performance sport
embarrassment etc etc
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Appendix 7

Interview transcript from study 2

Interview: Stuart Mitchell, January 3rd 2006

Okay, a couple of questions before we start Stu. How old are you?
36

How long have you been playing darts?
About 20 years

And what standard are you or where you?
Well I played in the Premier Division of the Lancashire Super League for three different teams. You know in years gone by, I built up a network of guys that I knew and got to know, and whatever one guy went, we tended to stick together as a team. I played for St. Helens, I played for Earlstown and I also played for Leigh.

And do you still play at that level now?
Err no.

Any particular reason why not?
At this particular moment in time, I am just getting back into the rhythm of playing darts. Basically I don't feel I am ready to take that step yet. That's just where I am at the moment.

Can you describe to me the first occasion you felt there was a problem with the yips? How did it feel, what were you thinking etc etc?
Yeah erm, it was a bit bizarre actually because I'd actually heard other people have the problem, you know over the years. Eric Bristow was the major one. And I used to laugh. I used to think it was something stupid. And I remember playing this particular game on this night and then all of a sudden I felt like this hesitation where normally I would even think about it. I'd just get the dart and throw it. And then all of a sudden, instead of me thinking about the board, I was thinking about me hand, me arm, me body not doing naturally what it has always been able to do. Anbd I felt the hesitation and instead of thinking about the board I started to think about the hesitation, thinking hang on, whats this?

How did it feel?
Weird, very strange, frightening to be honest coz I knew what it was and I never thought in a million years it would affect me because I've always been such a confident guy, I never thought in a million years anything like that would ever affect me.

So what were the kinds of symptoms you felt?
Erm, tense everywhere. Believe it or not, when I'm tired and I'm playing I'm more susceptible. It will start in my calf muscle which will tighten up, then my whole upper body will tighten up, my arms will ache, its literally an effort to lift your arm. Its like tyrying to lift weights and I'm only suing 17 gram darts for Christ sake. And this is at the lower end weight of darts that anyone would use. I dont know, its like, if you had an electric shock just as your about to release, it makes you close your hand. Its like a jerk, its weird. Its like the harder you try to throw the darts the tighter your grip would be on the dart. It was so bizzare. It started off relatively like just a bit of a twitch and then the more I tried the harder I tried to play the worse it got and when

I've played in different teams I have had people laughing at me. Its soul distroying. The more you thought about the problem the worse it got. You know, and I just felt completely and utterly frustrated.

How did you feel mentally??
So self-conscious it was like unbelievable. And you know, I was getting beat by people that I could beat left handed. And everyone's saying what the flipping heck is going on and I just couldn't explain it to anybody. I couldn't understand why it had happened to me. I was thinking am I ever going to get over this. Is it going to get worse? Because over the years, I haven't played seriously for about seven of eight years. I have had a go. I've tried, but I have never succeeded and overcome the problem. So basically I have played for a couple of months, realised it has still been there, and then packed it in again. And it's only now that I feel I am gradually getting on top of it.

Did you analyse what was happening?
I was trying to yeah. Every time that the darts came on the TV I used to look at the ways the guys used to stand facing the board with the darts in their hand. It was like I had forgotten how to get the arm from back here to the follow through and in between that, releasing the dart. Because, I used to go like that (pre tending to throw a dart) and I would still have the dart in my hand. You know it was bizarre.

Did that happen all the time?
I wouldn't say it happened all the time but what would happen was, it was like I would be facing the board and aiming it would be like, well if I let go of the dart there it will go in the treble twenty and if I do it there its not. If I didn't think my arm was in the right place I would keep hold of the dart. So, there are times when I would think I was going to throw it, and then I would go after it as if I'm going to catch it, and I would keep hold of it. It was so weird it was unreal. People used to say to me I've seen people with the yips but you're by far the worst. To be honest I'd ever only seen one or two people with it. Bristow was the most high profile. I used to watch him as a kid when he was on the TV. I thought he was great. And then I thought if someone like he can get it then anyone can. Coz he used to say like, that he would have a bowl of confidence for breakfast because he was that good. Now even to this day he has never got back to how he was. He was the 5 times World Champion and he might still have been right up there.

What happened to the rest of that performance?
Basically I just ended up packing in playing. The times when I did play people used to say to me just get a board, don't think about what your scoring, just throw the dart, throw it anywhere. And I found that if I don't that I could throw it. But what happened was, as soon as I had got it into my mind that I was going to target something specific, it would be there, it would be bad, and I couldn't get rid of the dart again. One of the hardest things I've actually found...I can build a rhythm into my game just throwing at twenties, treble twenties and stuff, and I can be fairly relaxed. But as soon as I get down to about 100 and odd and I'm thinking I've got to go for blah, blah, blah, and your target can be sometimes a little bit hesitant, and your not completely smooth and relaxed. And you will throw it, and because your not into that sort of rhythm, the dart will go nowhere near towards where you want it to. And that's when the frustration kicks back in, because you are so used to, in years gone by

as it is second nature, you expect to automatically be able to do it again. But, its disciplining myself again now. What I used to do was some of the exercises we have used for refereeing. Getting the tension out of your body, tensing yourself, pushing everything out, deep breaths and stuff like that and then going. I've done all of that. At times it has seemed to work and at other times it didn't. And what I found was, that by just picking up the darts and throwing them at the board, the longer I actually threw and the more of a rhythm I actually got into, I'd tend to get through it. Erm, but I have got to keep playing coz if I go away on holiday and then come back, it would be there, and it would take me a few days to get back through it.

Now my worst fear is, is that if I ever went playing on a Super League team we worst nightmare would be for it to come back coz that is a pressure situation. You know you are going to be playing a top opponent. You know you have got to basically get on that ocky and perform. You don't get a second chance. Abd that is what I am a bit scared of. Going on and making a complete muppet of myself because it is always at the back of your mind. Now I want to get into a situation where I'm playing a certain player and I know I can play well. Abd that's why when I start playing again, before I make that leap, I'm going to go into a team where I know all the players in there, who will be good, and I am going to test myself against them to see if I can cope. And, who knows? Suck it and see as they say (laughs).

How would you describe yourself as a person? What are the key characteristics which describe you?
Erm, confident, outgoing. Yeah fairly confident guy, got a good job, things are going fairly well for me at the moment. There are not an awful lot of things that can hit me or knock me down. You know, in years gone by I have not always had things the way I have got them at the moment. I have had to work hard for what I have got. So its nice to see a few things go right you know.

I'd also say I'm a bit of a perfectionist. I'm always of the opinion if you are going to do something do it bloody right otherwise don't bother.

Have you got any examples?
Erm, tricky one. Well, to be honest, I have always been of the opinion that if you can get the best then go and get it. I have got a Jucati 999s in the garage and a Fila Hodgson Replica and that is my ultimate dream bike. That is what I wanted and you know, I have got there, I have got it. And you know, I'll never have anything else. If I do, I'll swap that for a newer one coz in my opinion it is the best. It is like buying a Ferrari. You know I can stretch myself and afford to get that, I cant a Ferrari, that's realistic so I have done it. And that is something I have strived to do over the years and I have never been able to afford to do it until now, so I suppose this makes me a perfectionist in terms of the make of me.

So that's mainly that. When I play football, I always wanted to be the best centre forward, I was always dead competitive. I played in the same team as a lad that a grew up with. When I got a bit older and a bit bigger me and me mate had a match within a match, as not onl;y would we be playing against our opponents but we would be playing against each other as well. We would be trying to get the ball to score more goals than one another. That is how we were. I have always wanted to be good. I am a bad loser, I'm like that, I'll admit that. Even a music quiz on the television,

watching a question of sport, and I'm ultra competitive, you know, I wanna win (laughs). Other people like, don't give a shit. I do. 1just don't like coming second.

Err ...a few years ago in the job that I have not long recently left, I had moved into a sales role, and I was pushed into situations, to do things where 1never felt confident, because I hadn't been given the right kind of training. One of my worst nightmares happened when I go asked to go and do a presentation on a specific subject that I didn't know an awful lot about it. I had to prepare myself. I struggled to do it, to get myself into a situation where I was going to be confident. I am not frightened of doing a presentation providing I know what I am talking about. I tried to get it into a format where I was confident of standing up and doing it and coming across well. And when I'd done it my boss looked at it, he was only a young ML) at the time, a couple of years older than me, the son of the top boss, said to me, you cant do it like that, that is no good, you should do it like this.

And when I did it, it was re-written by him, and when I delivered the presentation, I've got to say it pardon the language, it was a fucking disaster.

What did it make you feel like?
Shit. It destroyed me. I felt really really bad. And the worst thing about it, even a couple of years after it, the guy who I was going to do it for, his company in front of 70 directors, was still letting me know how bad it was. And you know, that really did knock the shit out of me.

Just out of interest, did that happen before or after the yips started?
Yeah, I'd probably say 12-18 months. There was a period of around there of a number of things like that, which weren't going particularly well. And that was certainly one of them. That was certainly something, which sticks in the back of my mind.

Okay - lets talk about the darts. What characteristics would describe you as a darts player?
I wouldn't say I'm confident at the moment, I play now, and lets just look at it like this. If can get through a game without struggling to release the dart and having this hesitation there, I see that as a victory, regardless of whether I lose or I win. In years gone by before I had this problem, I used to be of the attitude no-one was going to beat me. If they were going to beat me, they were going to have to play a hell of a lot better than me. Which, at the rate I was playing at the time, they would have had to of been professional standard to have beat me. Where now, I'm nowhere near that level. I am getting beat by guys occasionally where years gone by I would laugh at them if they come up against me. And the mere fact that they knew they were going to play against me, I had already beaten them. I feel like I am a million miles away from that and that's what I feel I have got to get back to.

Would you call yourself a perfectionist?
That is a difficult question to answer really. I am probably obsessed with getting back to where I used to be. But I can't say I'm a perfectionist at the moment because I an nowhere near playing at that kind of standard. I'd say it's an obsession trying to get back to that kind of standard.

I find that I'm getting back to how I used to be in terms of my practice where I am practicing and practicing and practicing. Because I feel, the more I practice the better I get. I'm more relaxed when I am practicing but you know I could be playing for 3 hours, go down to a pub game, then play like I've never held a set of darts in my life...be absolutely terrible. I'd come off and I would be...how can I come off and be so good when I am practicing at home, and then play one game and be so far apart from where I was. When I had the yips, even when I was practicing it was shocking. Before the yips I was probably practicing 4 nights a week and then be playing in the Super League on the Sunday. So I used to be playing a hell of a lot.

Have you been conscious about your actions?
I think the problem I have had is that over the years I have built up a reputation of being a good player, a tough opponent to play against. The people that don't know me just think I disappeared out of darts for the sake of it, for the hell of it, for the fact that I didn't just want to play anymore. And now, since I've tried to start playing again, and they have seen that I have got the problem, they gone, wow, what is all that about. What's going on. And...I'm conscious of that. I have got to say there are occasions when I am more concerned about getting through a game without the problem being there than I am about the winning. Now I'm getting to the point now where I gradually feel I am getting over that. And I am getting to the point where I can slowly start thinking about winning the game. But, there are still the doubts there, if I'm tired or if I haven't put the hours in practicing. I'll pick up a set of darts and it is instantly, hang on a minute what the hell is going on here.

What would be the most and least anxious yips situation?
The least anxious for me is once I have got rid of the first dart. I tend to be like; right I have got rid of the 1st one now lets get rid of the second. The most anxious thing is when I get down to the double and I have got to be specific in my mind as to what I am targeting in my mind to hit. This is when I will tend to tense up. That's like when all of a sudden I have got a pain in the back of my calf muscle. I mean, I'm playing darts for Godsake. It's nothing to do with me bloody legs yet I have got a pain there, you know, me arm aches, all this sort of stuff. I feel like I have been lifting weights and all this sort of thing. It's so bizarre, that's the thing I have got to get through. Erm, you know fortunately, it has only happened once since I have started playing again.

Do you fear the yips?
Yeah I do, definitely. I just don't want it to come back. It drives me bloody mad. It is embarrassing. I don't know whether that is the right way to describe it but yeah, it is my worst nightmare.

I want to look at the period before the yips and to see what was happening in the build up to the problem. Were there any factors, which occurred?
There were certainly things with work that were beginning to kick in as I described earlier when you asked me if I felt self-conscious at any time. I was also seeing a girl at the time, and looking back at it, a few things went wrong with it, and we ended up splitting up and it wasn't really what I wanted to do. If you could ever say there was a right time and a wrong time to meet someone, you could say that was the wrong time. For me it was a major blow. It was like, on one minute off the next, on one minute off the next. Abd then I would try to stay away, out of her face. It was difficult, we

Well?

would always have that contact there. She wanted me there but at a distance to a degree. And when I would go off doing things with other girls, she would get to know about it, she would hit the roof. And I said to her, do you know what your problem is, you don't want me, but you don't want anybody else to have me either. I always tried to make it work and then we give it another go and then it would go off again. And I think one of the worst things for me was turning up at her house on Christmas Day and I hadn't seen her for a couple of months and I brought around a Christmas present for her daughter. I never forget when she opened the door. She had a porch. So she would have to open the inside door before she opened the porch. It was like I was going through slow motion in my mind analysing what was happening. She said, hiya, are you all right? I said, yeah, I've brought this present round for Catherine. She said there is something I have got to tell you. I said what? And you know, I knew what she was going to say before she said it. She said, I have started seeing someone else. I went oh right okay and I remember just having this horrible feeling in the pit of my stomach and I was gutted. And I just said, oh well whatever, everyone moves on don't they, and she said yeah, but he is sat inside. And I was just like, 'oh fuck. I just wanted the ground to open up.' It just swallowed me up. I was absolutely gutted.

How long did that feeling stay with you?
Years....(quiet period of about 20 seconds). But I went in. She invited me in but I didn't want to go in. Her daughter was at the window, she had seen me and knew I had a present. I got on fantastically well with the daughter and she was gutted when we split up. And to be honest, I went in, I had her hanging around me neck and I didn't really want to go in, you know meeting your replacement, especially with the way that I felt towards her. I went in and there was this bloke sat there, and I actually knew his face. In some ways it was a relief because you always expect someone who is six foot four, built like a brick shit house, but he was just the last thing I expected. And I burst out laughing. And I think she was quite embarrassed by it. And I stayed for a short while to give her daughter her present and then made my excuses to go. And I didn't say anything for quite a while. She knew what I was thinking. Anyway I bumped into her one day, and I had a bit of a grin on my face. And I said to her you will get up one morning and realise that you have made a big mistake. And she said, what do you mean by that. And I said, well you have heard of onwards and upwards! And I said, well its not meant to be onwards and backwards. I said, if that's what you want to do, its your life you get on with it. When it comes down to it, she was married to someone else, she was going through a divorce, and the guy she was married to basically dumped on her. I was a bit younger than her and she thought I was just there for the fun of it. But me being a muppet jumped in feet first, got involved and really it was the wrong time and wrong place. You know so it fell apart. And it was probably the first time in my life that something like that had happened. Actually throwing everything into something because I thought she was the one that I would actually end up getting married to, having kids and all that, and it just didn't happen.

How long did this incident happen before the yips occurred?
Probably not that long. Maybe 1 or 2 months before the yips started.

How did that affect your confidence?

Well I didn't really go out as much as I used to. Abd I even remember, I had all this time on my hands. So I suddenly started playing football again. And, I hadn't played football for years. I went to football and I remember sitting in the dressing room listening to the team talk and thinking what is this guy whittling on about. I was going out on the pitch getting ready for kick off and I remember thinking I wonder what she is doing now. Stupid things like that, just so bizarre. It went on for that long. I used to come home and have messages on the answer phone, you know, just wondering where you are and what you are doing, stuff like that. And I'm thinking she is seeing someone else, this is screwing my head up.

Can you remember the day when you experienced the yips? Did your routine involve anything that would remind you of her?
Yeah, I mean she lived around the corner. I would always go past her house on the way to the pub where I played darts. Erm, I always had a routine of when I finished playing darts I would always go around to hers after the match. Well that stopped. All of a sudden I didn't do these things. You know if I was out with my Dad, playing with my Dad, he would drop me off at her house, on his way home, even if it was 11 o'clock at night, as it was within walking distance of mine. I would either stay there for an hour and then walk home or in most cases stay there for the night. You know but, err, it was just, err weird.

Its weird because you know, every girl that I went out with since then, I always compared to her. I wanted it to be in my own mind better than what I had then, and in most cases it wasn't. You know, and its like, why am I doing this, I don't want to be doing this. You know, and it just went on for ages and ages and ages.

And then erm a couple of years ago I met a girl that I thought was the best thing since sliced bread and then all of a sudden that went tits up. And I was taken for a ride there big time. You know, but that happens and I thought, right, I'm not going to do that again. If I am going to go into this, this is how I am going to do it. I've been very careful how I have done it. Its been a bit unfair on Amanda and she has bore the bront of a lot of negative things about me and its because of my previous history you know.

Are there any similarities in the emotions you felt then and the emotions you felt during the yips?
Err, yeah to be honest. Because it is like losing something so bad that you have been used to and loved doing so much, and it is just gone in a flash. You know, just like flicking a coin, its out of your control, your not in control at all. You know that's the biggest thing, it is something that you want but you cant have. You know, I couldn't even go down the bloody pub for a game of darts with me Dad. And I wouldn't have batted an eyelid. And I thought, people take this for granted yet I can't do it. You know, stupid little things like that and you know that was that. Just like that, gone in a flash. I used to watch it on the TV and think I want to be able to do that again. So if it was ever on, I used to turn it off coz I couldn't bare watching it. It used to drive me mad. There were guys on the TV that I played in Super League who were on the TV, and I'd played them in exhibition matches. And now I wouldn't even dream of playing a pub dart team player. You know, I've played Bristow, I've played Warriner, and I've played Kevin Kenny and beaten him. I've played Jocky Wilson.

Whenever there were exhibition matches on in the league that I played I was one of the first names on the sheet, and it had all gone.

How have your performance been since that first experience?
I'm a lot better; I'm a lot more relaxed. I wouldn't say it has gone as I have my moments were I think shit, is it there, I'll let go of the dart and I'll think no its not. Just relax, keep the rhythm and the routine and you will be all right. But I do have my moments. If I have had along long day and not had much sleep. If I have been on a boozy night out with customers and then I am up the following morning, long journey and that, and then I have got a game, it could be disastrous for me because it would be putting me right back to where I was. That same thing happened to me one night and I actually said to my skipper, unless you are desperate tonight, don't play me, coz I knew what would happen. I know what I am going to be like when I go on.

Have you had any positive experiences since the yips?
Oh yeah. I have felt elated, I have felt unreal. When I put that board up upstairs, and I have played and been practicing for a bit. I have played a game in my head and I have just gone 180, 140, 140. I have had other games where I have been hitting 140, 140 and I've gone down had had 141 checkouts. You know treble twenty, treble 18, double 15. And I have just felt to myself, it is still there. The ability is still there. It is just a matter of dragging it out of myself again. And I'd feel great and I would go down the pub and I'd be saying to fellas do you want a game. I'd want to see if I could do it playing someone in a knockabout environment. Down in the pub the other week, three or four 180's in the day, I'll go in there the next day and I will bag in about 10 180's, and its just a laugh. And there like, well we are not going to be playing you for money tonight (laughs). That's the kind of comments guys would say to me and I would be like, I'm just doing it for fun mate.

Things like this give me the bug to get back into it and kick some arse big time and it is so frustrating.

When would you say they are easiest or hardest to control?
Err, I don't know I cant really answer that to be honest. It's either there or its not. At the moment I feel as though I could pick my darts up and you wouldn't see a thing. I never know unless I'm feeling tired as to whether it is going to come back. It would just happen, and as soon as that happens I stop straight away. I don't give it a chance to get as bad as sometimes I know it has been. I'll just put my darts down and walk away. I find that if I stay there and carry on, they will just get worse and worse and worse and worse, to a complete disastrous point where I would have to pack in completely. It would really be in my head then.

I've had one or two further negative experiences. I play for one team on a Friday night and me Dad plays in another. I think the added pressure, knowing that my Dad was there, and all his team mates were there wanting to win, and me wanting our team to win. That was tough. But, I really really disciplined myself in respect of how I was feeling to try and keep myself relaxed. And, it was a massive game for me, and we actually won it believe it or not. I felt like I had won the National Lottery when I had come off. I felt so much relief that I had actually won. The team ended up getting beat, but I went on when we were 3-0 down, knowing I cant afford to lose this game, knowing that we would have lost. We are not going to come back from 4-0

down. The captain put me on at 3-0 down, and I'm thinking we have got to win this game. Anyway I won it, we got it back to 3-3, then we ended up getting beat 5-4. I was gutted, but the fact that I had gone on in a pressure situation, and to a degree I had came through it.

What treatments have you tried to overcome it?
Jesus! Everything. Relaxation, tapes, CD's. I've even thougnt about hypnotherapy and the bloke couldn't hypnotise me. I don't know whether it is because I am so wound up about it I don't know.

How have they helped?
I wouldn't say they have really. I'd say the relaxation more than anything else has probably been more beneficial. Because what I have been able to do is distinguish between when I have been suffering a lot of tension and a lot of anxiety. Have I been able to identify when I have been feeling like that to when I am not. And I thought I have got to get into a situation where I don't feel like that to have any chance to deliver. And I've fixed that and focused my mind on that, to do this Stuart you need to feel and get your body into that state of mind. And I've got that and built on from that.

Have you ever experienced anything like the yips outside of sport?
No

Looking back, what factors do you think contributed to the problem?
Err, Ijust think for me personally, certain things have happened in my life at a certain period, which have been pretty shitty, disastrous, and they have been things which have been out of my control and basically things which I haven't been able to say right, this is what we need to do to fix it. It's been other people's sort of things that have affected me and I have not been able to change that. That is the only thing that I can think of to be honest.

Have you got any further information you feel is important?
The only thing, looking back at that, there are times when I have better when 1have had the problem, and that is because I might have had something which was a bit of a plus happen at a given moment in time. For instance, when I passed my motorbike test, I was buzzing. Now the problem was still there, but it hadn't been as bad. You know silly little things like that were I have met a girl who I have really fancied and I've gone out and its like great. But then you have a bit of a relapse when things don't go as well as you like. They are generally it really, a stress thing. Things that you don't feel you have got the ability to control. It's more that things have been outside of my control and that in turn has impacted on how I'm throwing the darts. I can't specifically think of anything else. That must be it really.

Appendix 8

The Reinvestment Scale

The Reinvestment Scale

DIRECTIONS: A number of statements which people have used to describe themselves are listed below. Read each statement and then circle the appropriate answer to indicate whether this statement *generally* describes you. There are no right or wrong answers. Do not spend too much time on any one statement, but give the answer which seems best to describe you.

Statement	Answer (yes/no)
I remember things that upset me or make me angry for a long time afterwards.	
I get "worked up" just thinking about things that have upset me in the past.	
I often find myself thinking over and over about thingsthat have made me angry.	
1 think about ways of getting back at people who have mademe angry long after the event has happened.	
1 never forget people making me angry or upset, even about small things.	
When 1 am reminded of my past failures, I feel as if they are happening all over agair	
I worry less about the future than most people 1 know.	
I'm always trying to figure myself out.	
I reflect about myself a lot.	
I'm constantly examining my motives.	
I sometimes have the feeling that I'm off somewhere watching myself.	
I'm alert to changes in my mood.	
I'm aware of the way my mind works when I work through a problem.	
I'm concerned about my style of doing things.	
I'm concerned about the way I present myself.	
I'm self-conscious about the way I look.	
I usually worry about making a good impression.	
One of the last things I do before leaving my house is look in the mirror.	
I'm concerned about what other people think of me.	
Do you have trouble making up your mind?	

Appendix 9

Frost Multidimensional Perfectionism Scale

The Frost Multidimensional Perfectionism Scale

Similarly, the following possible responses range from 1, *strongly disagree*, to 5, *strongly agree*, with 3 being the neutral or undecided point.

		Strongly Disagree				Strongly Agree
I	My parents set very high standards for me	I	2		4	5
2.	Organisation is very important to me	I	2		4	5
3.	As a child, I was punished for doing things less than perfect	I	2		4	
4	If I don't set the highest standards for myself, I am likely to end up second rate.	I	2		4	5
5	My parents never tried to understand my mistakes	I	2		4	5
6.	It is very important to me that I be thoroughly competent in everything that I do.	I	2		4	5
7.	I am a neat person.	I	2		4	5
8.	I try to be an organised person.	I	2		4	5
9.	If I fail at university or work, 1am a failure as a person.	1	2		4	5
10.	I should be upset if I make a big mistake	I	2		4	5
11.	My parents wanted me to be the best at everything	I	2		4	5
12.	I set higher goals than most people, it's the only way to achieve.	I	2		4	5
13.	If someone achieves better than me at uni/work, I feel Ihave failed the whole task/subject.	I	2		4	5
14.	If I fail partly, it is as bad as being a complete failure.	I	2		4	5
15	(Only outstanding performances are good enough in my family.	I	2		4	5
16.	I am very good at focusing my efforts on attaining a goal.	I	2		4	5
17	Even when I do something very well, I oflen feel that its not enough	I	2	3	4	5
18	I hale being less than the best at things		2	3	4	5
19.	I have extremely high goals, both for myself and others.		2	3	4	5
20.	My parents have expected excellence from me.		2	3	4	5
21.	People will probably think less of me if I make an error.		2	3	4	5
22.	I never felt like I could meet my parents' standards		2	3	4	5
23.	If I don't do as well as others, I am an inferior human being.		2	3	4	5
24	Other people seem to accept lower standards than me		2	3	4	5
25.	If I don't do well all the time, people will not respect me.		2	3	4	
26.	My parents have always had higher expectations for my future than I have.		2	3	4	
27.	I try to be a neat person		2	3	4	
28.	1usually have doubts about the simple everyday things I do.		2	3	4	
29.	Neatness is very important to me		2	3	4	
30.	I expect higher performance in my daily tasks than most people.		2	3	4	
31	I am an organised person		2	3	4	
32.	I tend to get behind in my work because I repeat things over and over.		2	3	4	
33.	It takes me a long time to do something "right"		2	3	4	
34.	The fewer mistakes I make, the more people will like me.		2	3		
35.	I never felt like I could meet my parents expectations.		2	3		

Appendix 10

SPSS outputs for study 3

ariance

Between-Subjects Factors

		Value Label	N
Sport Type	1.00	Cricket	20
	2.00	Darts	20
	3.00	Golf	20

Descriptive Statistics

Dependent Variable: Reinvestment

Sport Type	Mean	Std. Deviation	N
Cricket	10.7000	3.52584	20
Darts	8.8000	3.54816	20
Golf	10.3500	3.15019	20
Total	9.9500	3.45639	60

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Reinvestment

F	df1	df2	Sig.
.408	2	57	.667

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept+sport

airwise Comparisons

Dependent Variable: Reinvestment

(I) Sport Type	(J) Sport Type	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
Cricket	Darts	1.900	1.079	.251	-.762	4.562
	Golf	.350	1.079	1.000	-2.312	3.012
Darts	Cricket	-1.900	1.079	.251	-4.562	.762
	Golf	-1.550	1.079	.469	-4.212	1.112
Golf	Cricket	-.350	1.079	1.000	-3.012	2.312
	Darts	1.550	1.079	.469	-1.112	4.212

Based on estimated marginal means

a. Adjustment for multiple comparisons: Bonferroni.

Univariate Tests

Dependent Variable: Reinvestment

	Sum of Squares	df	Mean Square	F	Sig.
Contrast	40.900	2	20.450	1.756	.182
Error	663.950	57	11.648		

The F tests the effect of Sport Type. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

Post Hoc Tests

Sport Type

Multiple Comparisons

Dependent Variable: Reinvestment
Tukey HSD

(I) Sport Type	(J) Sport Type	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Cricket	Darts	1.9000	1.07927	.192	-.6972	4.4972
	Golf	.3500	1.07927	.944	-2.2472	2.9472
Darts	Cricket	-1.9000	1.07927	.192	-4.4972	.6972
	Golf	-1.5500	1.07927	.329	-4.1472	1.0472
Golf	Cricket	-.3500	1.07927	.944	-2.9472	2.2472
	Darts	1.5500	1.07927	.329	-1.0472	4.1472

Based on observed means.

Homogeneous Subsets

Reinvestment

Tukey HSD[a,b]

Sport Type	N	Subset 1
Darts	20	8.8000
Golf	20	10.3500
Cricket	20	10.7000
Sig.		.192

Means for groups in homogeneous subsets are displayed.
Based on Type III Sum of Squares
The error term is Mean Square(Error) = 11.648.

a. Uses Harmonic Mean Sample Size = 20.000.

b. Alpha = .05.

es o etween-Subjects Effects

Dependent Variable: Perfectionism

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	165.033[a]	2	82.517	.580	.563
Intercept	243971.267	1	243971.267	1716.051	.000
Sport	165.033	2	82.517	.580	.563
Error	8103.700	57	142.170		
Total	252240.000	60			
Corrected Total	8268.733	59			

a. R Squared = .020 (Adjusted R Squared = -.014)

Estimated Marginal Means

Sport Type

Dependent Variable: Perfectionism

Sport Type	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Cricket	65.700	2.666	60.361	71.039
Darts	61.650	2.666	56.311	66.989
Golf	63.950	2.666	58.611	69.289

Post Hoc Tests

Sport Type

u p e ompar sons

Dependent Variable: Perfectionism
Tukey HSD

(I) Sport Type	(J) Sport Type	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Cricket	Darts	4.0500	3.77055	.534	-5.0235	13.1235
	Golf	1.7500	3.77055	.888	-7.3235	10.8235
Darts	Cricket	-4.0500	3.77055	.534	-13.1235	5.0235
	Golf	-2.3000	3.77055	.815	-11.3735	6.7735
Golf	Cricket	-1.7500	3.77055	.888	-10.8235	7.3235
	Darts	2.3000	3.77055	.815	-6.7735	11.3735

Based on observed means.

Homogeneous Subsets

Perfectionism

Tukey HSD[a,b]

Sport Type	N	Subset 1
Darts	20	61.6500
Golf	20	63.9500
Cricket	20	65.7000
Sig.		.534

Means for groups in homogeneous subsets are displayed.
Based on Type III Sum of Squares
The error term is Mean Square(Error) = 142.170.

a. Uses Harmonic Mean Sample Size = 20.000.

b. Alpha = .05.

	Sum of Squares		Mean Square	
Between Groups	182.433	j	91.217	1.958
Within Groups	2655.750	SZ	46.592	
Total	2838.183	69		

Homogeneous Subsets

CM

Tukey HSD[a]

Sport	N	Subset for alpha = .05
		1
Darts	20	25.2500
Golf	20	26.1000
Cricket	20	29.3000
Sig.		.155

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 20.000.

Descriptives

									Maximum
									20.00
									20.00

Test of Homogeneity of Variances

	Levene Statistic			Sig.
	.867			.490

ANOVA

	Sum of Squares		Mean Square	
Between Groups	17.433		8.717	
Within Groups	687.500		12.061	
Total	704.933			

u p e omparisons

Dependent Variable: DA
Tukey HSD

(I) Sport	(J) Sport	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Cricket	Darts	1.30000	1.09824	.468	-1.3428	3.9428
	Golf	.85000	1.09824	.720	-1.7928	3.4928
Darts	Cricket	-1.30000	1.09824	.468	-3.9428	1.3428
	Golf	-.45000	1.09824	.912	-3.0928	2.1928
Golf	Cricket	-.85000	1.09824	.720	-3.4928	1.7928
	Darts	.45000	1.09824	.912	-2.1928	3.0928

Homogeneous Subsets

DA

Tukey HSD[a]

Sport	N	Subset for alpha = .05
		1
Darts	20	9.9500
Golf	20	10.4000
Cricket	20	11.2500
Sig.		.468

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 20.000.

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Between-Subjects Factors

		Value Label	N
sport	1.00	cricket	20
	2.00	darts	20
	3.00	golf	20

Descriptive Statistics

Dependent Variable: PC

sport	Mean	Std. Deviation	N
cricket	8.6500	3.85630	20
darts	7.6000	2.90915	20
golf	9.1000	4.57568	20
Total	8.4500	3.82864	60

Levene's Test of Equality of Error Variances[a]

Dependent Variable: PC

F	df1	df2	Sig.
1.092	2	57	.342

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept+sport

Pairwise Comparisons

Dependent Variable: PC

(I) sport	(J) sport	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
cricket	darts	1.050	1.215	1.000	-1.946	4.046
	golf	-.450	1.215	1.000	-3.446	2.546
darts	cricket	-1.050	1.215	1.000	-4.046	1.946
	golf	-1.500	1.215	.666	-4.496	1.496
golf	cricket	.450	1.215	1.000	-2.546	3.446
	darts	1.500	1.215	.666	-1.496	4.496

Based on estimated marginal means

a. Adjustment for multiple comparisons: Bonferroni.

Univariate Tests

Dependent Variable: PC

	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Contrast	23.700	2	11.850	.803	.453	.027
Error	841.150	57	14.757			

The F tests the effect of sport. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

Post Hoc Tests

sport

Dependent Variable: PC

Tukey HSD

Descriptives

Levene Statistic 1.485

k

Dependent Variable: PE

Tukey HSD

(I) sport	(J) sport	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
darts	cricket	-10.0000	1.15833	.000	-13.7583	-6.2417
	golf	-12.2000	1.15833	.000	-15.9583	-8.4417
	hockey	-12.7000	1.15833	.000	-16.4583	-8.9417
	rugby	-10.0000	1.15833	.000	-13.7583	-6.2417
	tennis	-12.2000	1.15833	.000	-15.9583	-8.4417
cricket	darts	10.0000	1.15833	.000	6.2417	13.7583
	golf	-2.2000	1.15833	.403	-5.9583	1.5583
	hockey	-2.7000	1.15833	.216	-6.4583	1.0583
	rugby	.0000	1.15833	1.000	-3.7583	3.7583
	tennis	-2.2000	1.15833	.403	-5.9583	1.5583
golf	darts	12.2000	1.15833	.000	8.4417	15.9583
	cricket	2.2000	1.15833	.403	-1.5583	5.9583
	hockey	-.5000	1.15833	.972	-4.2583	3.2583
	rugby	2.2000	1.15833	.403	-1.5583	5.9583
	tennis	.0000	1.15833	1.000	-3.7583	3.7583
hockey	darts	12.7000	1.15833	.000	8.9417	16.4583
	cricket	2.7000	1.15833	.216	-1.0583	6.4583
	golf	.5000	1.15833	.972	-3.2583	4.2583
	rugby	2.7000	1.15833	.216	-1.0583	6.4583
	tennis	.5000	1.15833	.972	-3.2583	4.2583
rugby	darts	10.0000	1.15833	.000	6.2417	13.7583
	cricket	.0000	1.15833	1.000	-3.7583	3.7583
	golf	-2.2000	1.15833	.403	-5.9583	1.5583
	hockey	-2.7000	1.15833	.216	-6.4583	1.0583
	tennis	-2.2000	1.15833	.403	-5.9583	1.5583
tennis	darts	12.2000	1.15833	.000	8.4417	15.9583
	cricket	2.2000	1.15833	.403	-1.5583	5.9583
	golf	.0000	1.15833	1.000	-3.7583	3.7583
	hockey	-.5000	1.15833	.972	-4.2583	3.2583
	rugby	2.2000	1.15833	.403	-1.5583	5.9583

Subset for alpha = .05

sport	N	1	2
darts	5	10.0000	
cricket	5		12.2000
golf	5		12.7000
Sig.		1.000	.080

...ysis o. .ariance

Between-Subjects Factors

		Value Label	N
group	1.00	cricket	20
	2.00	darts	20
	3.00	golf	20

Descriptive Statistics

Dependent Variable: org

group	Mean	Std. Deviation	N
cricket	20.5000	5.93385	20
darts	22.5500	4.82837	20
golf	20.9500	5.77176	20
Total	21.3333	5.51013	60

Levene's Test of Equality of Error Variances[a]

Dependent Variable: org

F	df1	df2	Sig.
.894	2	57	.414

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept+group

a rw se omparisons

Dependent Variable: org

(I) group	(J) group	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
cricket	darts	-2.050	1.750	.739	-6.366	2.266
	golf	-.450	1.750	1.000	-4.766	3.866
darts	cricket	2.050	1.750	.739	-2.266	6.366
	golf	1.600	1.750	1.000	-2.716	5.916
golf	cricket	.450	1.750	1.000	-3.866	4.766
	darts	-1.600	1.750	1.000	-5.916	2.716

Based on estimated marginal means

a. Adjustment for multiple comparisons: Bonferroni.

Univariate Tests

Dependent Variable: org

	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Contrast	46.433	2	23.217	.758	.473	.026
Error	1744.900	57	30.612			

The F tests the effect of group. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

Post Hoc Tests

group

Dependent Variable: org

Tukey HSD

group	N	Subset 1
cricket		20.5000
golf		20.9500
darts		22.5500
Sig.		.475

		Std. Error Mean
		.44622
		.25947

i

	Std. Error Mean
	.89540
	.40162

	Std. Error Mean
	.44624
	.26156

	Std. Error Mean
	.49428
	.28444

	Std. Error Mean
	.51638
	.32186

	Std. Error Mean
	.36620
	.27253

Appendix 11

Ethics approval for study 4

CONFIDENTIAL

Sheffield Hallam University

Faculty of Health and Wellbeing
Research Ethics Committee

Sport and Exercise Research Ethics Operating Group

APPLICATION FOR APPROVAL OF RESEARCH

In designing research involving humans, principal investigators should be able to demonstrate a clear intention of benefit to society and the research should be based on sound principles. These criteria will be considered by the Ethics Committee before approving a project. ALL of the following details must be provided, either typewritten or word-processed preferably at least in 11 point font.

Please either tick the appropriate box or provide the information required.

1. Date of Application	1/1/2006
2. Anticipated Date of Completion	16/06/2006
3. Title of investigation	A case study utilising Emotional Freedom Techniques to cure the yips
4. Subject Area	Psychology
5. Principal Investigator **Name** **Email address** **Telephone/mobile number** **Student number**	Mike Rotheram m.rotheram@shu.ac.uk 0114 225 5634/07734 678778 112/808

6. Is this

6.1 a research project? [✓]

	Module Name	**Module Number**
6.2 an undergraduate project? [ ]		
6.3 a postgraduate project? [ ]		

7. Director of Studies/ Supervisor/Tutor	Professor Ian Maynard/Dr Mark Bawden/Dr Owen Thomas

8. Intended duration and timing of project	January 1st 2006 to June 16th 2006

9. Location of project (If parts are external to SHU, provide evidence in support in section 19)	CSES and external consultant

10. Is this study	
10.1 Collaborative? [ ]	**If yes please include appropriate agreements in section 19**
10.2.1 Replication [ ] of	
10.2.2 New [✓]	

11. Participants

11.1 Number	1
112 Rationale for this number: (eg calculations of sample size)	This is a 1 person case study examining the effectiveness of a novel intervention in treating the yips. The rationale for using 1 subject is because it is important to see the effectiveness of the intervention before using it with larger samples.
11.3 Criteria for inclusion and exclusion for example age and gender:	The golfer is someone who has volunteered to take part and understands the nature of the study, in that the university is only collecting data after each treatment with the external consultant.
11 4 Procedures for recruitment for example location and methods:	The participant is someone who has taken part in numerous yips studies in MSc work and is known to the principle investigator.
11.5 Does the study have *minors or Vulnerable adults as participants?	Yes [ ] No [*s*]
11.6 1s CRB disclosure required for the Principal Investigator? *(To be determined by risk assessment)*	Yes [ ] No [/] If yes, is standard [ ] or enhanced [ ] disclosure required?

11.7 If you ticked 'Yes' in 11.5 and 'No' in 11.6 please explain why:

*Minors are participants under the age of 18 years.
^Vulnerable adults are participants over the age of 16 years who are likely to exhibit:
a) learning difficulties
b) physical illness/impairment
c) mental illness/impairment
d) advanced age
e) any other condition that might render them vulnerable

The yips have been defined as a psycho neuromuscular impediment affecting the execution of the putting stroke in golf (Smith et al., 2003). An extremely small percentage of writers (Crisp and Moldofsky, 1965; Bindman and Tibbets, 1977), musicians (Jabusch and Altenmuller, 2004), typists, telegraphers and artists (Lim et al., 2001) all experience similar performance breakdowns to the 'yips' in golf. This is based on the similarity of physical symptoms involved in skill execution. Focal dystonia affects the cheek muscles in musicians who play wind instruments and finger muscles in guitarists (Smith et al., 2003). Researchers have therefore linked the symptoms experienced by golfers to those in occupational domains (McDaniel et al., 1989; Sachdev, 1992; Smith et al., 2000, 2003) The 'yips' in golf putting manifest in various forms of physical impediment, specific to the task output (McDaniel et al., 1989; Sachdev, 1992; Smith et al., 2000, 2003; Adler et al., 2005). In cricket bowling, Bawden and Maynard (2001) indicated the pre-dominant sensation experienced was tension in the hand, and subsequently, a feeling of not being able to release the ball. Rotheram et al (2006) reported that psychological symptoms of the yips remains consistent across golf, darts and cricket, yet physical symptoms experienced were unique to task constraints. A higher percentage of golfers, darts players and cricket bowlers also perceived the 'yips' to be a psychological problem followed by a physical disturbance rather than vice versa. When probed to provide their explanation of when, where and what happens during the 'yips' experience, a number of participants cited factors, outside of sport which may have contributed to the problem.

At present there is no definite cure for focal dystonia or the 'yips' although numerous strategies have been employed. Rotheram *et al.* (Paper presented at the Annual Conference of the British Association of Sport and Exercise Sciences Conference, Wolverhampton) reported some findings that suggest significant emotional events often occurred prior to the 'yips', A recent paper suggested that Emotional Freedom Techniques (EFT) is a fast and effective treatment for dealing with emotional events (Flint *et al.* 2006: *Journal of Aggression, Maltreatment and Trauma,* 12, 125-150). EFT involves tapping on acupressure points whilst the client focuses on the problem. This study will examine the effectiveness of EFT in treating a golfer afflicted with the yips .

13. Details of the research design and protocols

13.1 provide details.

If a Mode B support project is being proposed please state the protocols under the following headings: a. needs analysis; b. potential outcome; c proposed interventions.

N = 1

The participant will come into the laboratory on 6 separate occasions. He will be measured on 4 dependent variables at each data point which consists of; SAM Motion data, putting success rate, visual indicator of the yips, and severity of the yips on the golf course. These will take place at:

- Baseline
- After treatments 1, 2, 3 and 4, 6 months after 4th treatment the participant will be measured again on each of the variables as a follow up to test the potential longevity of the treatment technique.

13.2 Are these "minor" procedures as defined jn Appendix I of the ethics guidelines? Yes \s] No [___

13.3 If you answered 'No' in Section 13.2, list the procedures that are not minor.

14. Indicative methods of analysis

14.1 Provide details of the quantitative and qualitative analysis to be used.

Analysis is a simple case study design.

15. Substances to be administered (Refer to Appendix V of the ethics guidelines)

15.1 The protocol does not involve the administration of pharmacologically active substances or nutritional supplements. *(Please tick the box if this statement applies and go to section 16)* [ ]

15 2 Name and state the risk category for each substance. If a COSHH assessment is required state how the risks are to be managed.

16. Degree of discomfort that participants might experience_____

16.1 To consider the degree of physical or psychological discomfort that will be experienced by the participants. State the details which must be included in the participant information sheet to ensure that the participants are fully informed about any discomfort that they may experience.

Whilst putting in the laboratory the participant may experience slight discomfort putting due to fatigue,

17. Outcomes of Risk Assessment.

17.1 Provide details of the control measures arising out of the assessment of risk including the nature of supervision and support required during the experimental phase of the project.

There are no risks associated with the completion of questionnaires.

18. Safe System of Work □

18,1 Indicate how the control measures outlined in section 17,1 will be implemented to minimise the risks in undertaking the research protocol (refer to 13.1), State the technical skills needed by the Principal Investigator to ensure safe working.

The participant will be given an information sheet outlining the nature of the interview, and the control procedures in place, The participant is required to sign a document explaining that they are free to withdraw from the experiment at any time.

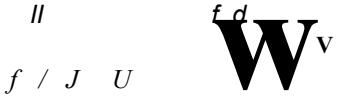
19. Attachments

(Place a tick in the appropriate description)

19.1 RiskAssessment(s) (Include CRB risk assessment)	*[S*]
19.2 COSHH Assessment	[ ]
19.2 Participant Information Sheet	[*S]*
19.3 Informed Consent Form	[v ']
19.4 Pre-Test Medical Questionnaire	[ ]
19.5 Collaboration evidence/support (see 10)	[ ]
19.6 Collaboration facilities (see 9)	[ ]
19.7 Clinical Trials Form (FIN 12)	[ ]

20. Signature
Principal Investigator

Once this application is approved, I will undertake the study as approved, If circumstances necessitate that changes are made to the approved protocol, 1will discuss these with my Project Supervisor. If the supervisor advises that there should be a resubmission to the Ethics Committee, I agree that no work willie □earned out using the changed protocol until approval has been sodbh :apb forjhally received.



Principal Investigator

Name : Mike Rotheram (1/1/2006)

21. Approval
Project Supervisor to sign off EITHER box A OR box B as applicable.

) (refer to Appendix 1 and the flowchart in appendix VI of the ethics guidelines)

Box A:

I confirm that the experimental protocol contained in this proposal is based solely on 'minor' procedures, as outlined in Appendix 1 of the HWB Sport and Exercise Research Ethics Operating Group Procedures for the Use of Humans in Research document, and therefore does not need to be submitted to the HWB Sport and Exercise Research Ethics Operating Group.

Jlrj

In terms of ethics approval, I agree the 'minor' procedures proposed here and confirm that the Principal Investigator may proceed with the study as designed.

Project Supervisor.....Date .

Box B:

I confirm that the experimental protocol contained in this proposal is not based solely on 'minor' procedures, as outlined in Appendix 1 of the HWB Sport and Exercise Research Ethics Operating Group Procedures for the Use of Humans in Research document, and therefore must be submitted to the HWB Sport and Exercise Research Ethics Operating Group for approval.

I confirm that the appropriate preparatory work has been undertaken and that this document is in a fit state for submission to the HWB Sport and Exercise Research Ethics Operating Group.

Project Supervisor.....Date.....

Name.....

22. Signature
Technician

I confirm that I have seen the full and approved application for ethics approval and technical support will be provided.

Technician.....Date.....

Name.....

Appendix 12

Social validation questionnaire study 4

Social Validation Questionnaire – Study 4
(please circle the appropriate response)

Date:

1. How frequently did the 'yips' occur today?

1	2	3	4	5	6	7
Not at all						All of the time

Please elaborate on your answer here:

2. How severe where the 'yips' symptoms you experienced today?

1	2	3	4	5	6	7
Not severe at all						Extremely severe

Please elaborate on your answer here:

Appendix 13

SAM pre and post data examples study 4

SAM Data: Pre intervention

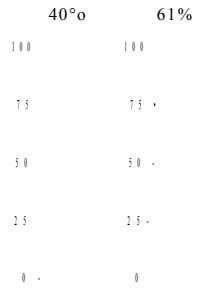
SAM PuttLab

The revolution in short game golf training

Science&Motion
Golf
www.scienceandmotion com

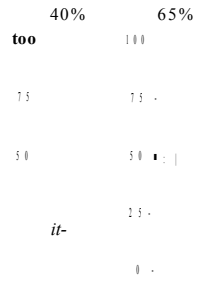
Project: Project I
Player: Grice, Nigel
File: test I
Date: 1 1 10.2005

Face at address



open 2.9

Face at impact



open 2.9'

	10.0	-5.0	00	5.0	jo.o	
Face at address	closed		EMI		open	2 9 r open
	-10 0	-5.0	0.0	5 0	10.0	
Face at impact	dosed		EQI		open	2 9 open
	-10.0	-5.0	c.o	5.0	10	
Face change	ciosng		ill		opening	0 0°

§ SAMPuttLab

Science&Motion
Golf
www.scienceandmotion.com

w
*
game golf training

Project Project 1
Player Grice, Nigel
File test 1
Date: 11.10.2005

Putter path - top view

« - ^ f
f_1

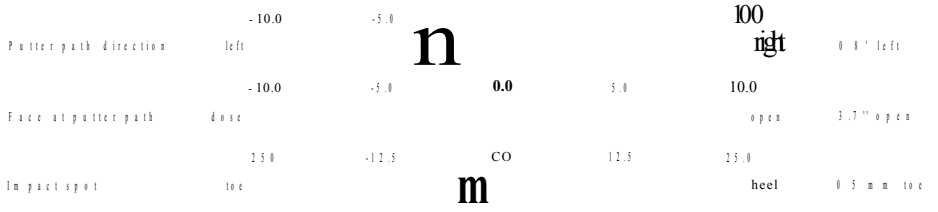
100 mm

0.8° left

Impact spot

u
Score **Consistency**

0.5 mm toe



SAM PuttLab

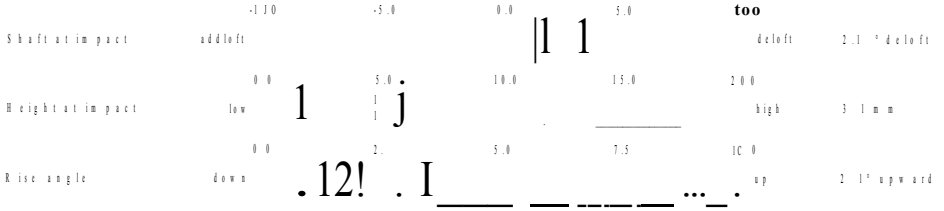
The revolution In short game golf training

Science&Motion
Golf
wvvw.scienceandmotion.com

Project: Project 1
Player Grice, Nigel
File: test I
Date. 11 10.2005

Rise & Shaft at impact

Rise angle



SAM Data: 6 months post intervention

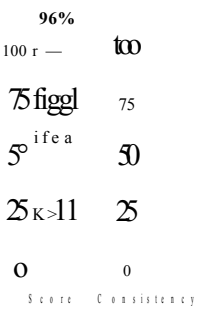
■ **SAMPuttLab**

^ **The revolution in short game golf training**

Science&Motion
Golf
www.scienceandmotion.com

Project: **Project I**
Player. **Grice, Nigel**
File: **follow 6 foot**
Date: **16.6.2006**

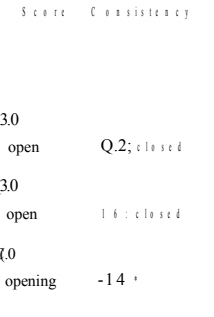
Face at address



closed 0.2”

Face at impact

closed 1.6°



	-10.0	-5.0	0.0	5.0	13.0	
Face at address	dosed		F		open	Q.2; closed
	-10.0	-5.0	0.0	5.0	1(3.0	
Face at impact	dosed		I' II		open	1 6 : closed
	-1 30	-50	0.0	5.0	IQ.0	
Face change	dosing		II W		] opening	-14 °

Report PRO Print Report

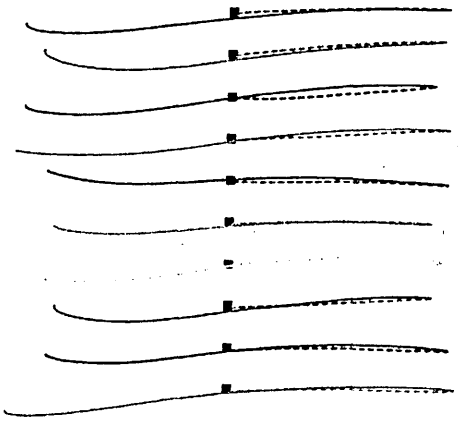
SAM PuttLab

The revolution in short game golf training

Science&Motion Golf
www.scienceandmotion.com

Project:	Project 1
Player:	Grice, Nigel
File:	follow 6 foot
Date:	16.6.2006

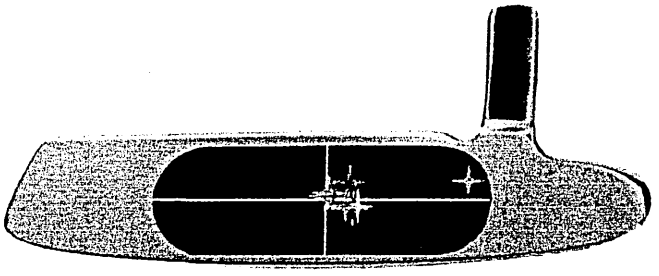
Putter path - top view

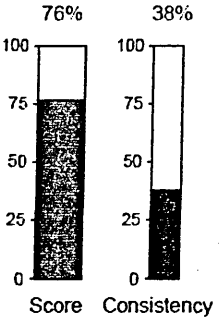


100 mm

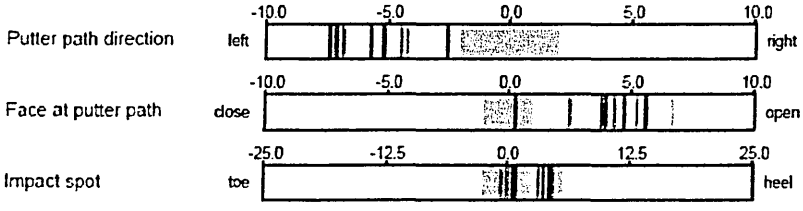
5.8° left

Impact spot





4.7 mm heel



Report: PRO Print Report

B—i SAMPuttLab

The revolution in short game golf training

Science&Motion Golf
www.scienceandmotion.com

Project: **Project 1**
Player: **Grice, Nigel**
File: **follow 6 foot**
Date: **16.6.2006**

Putter path -

4—Jh

Rise & Shaft at impact

Shaft angle

	-1 **10**	**-5.0**	0,0	5.0	?°	
Shaft at impact	addloft		i		dekrft	0.0 **° addloft**
	0 0	**5.0**	10.0	**15.0**	*2()*,0	
Height at impact	low		I if 1		high	**8.3 mm**
	0 0	**2.5**	**5.0**	**7.5**	*lC* .0	
Rise angle	down	I M I 1 II			up	*2.9C* **upward**

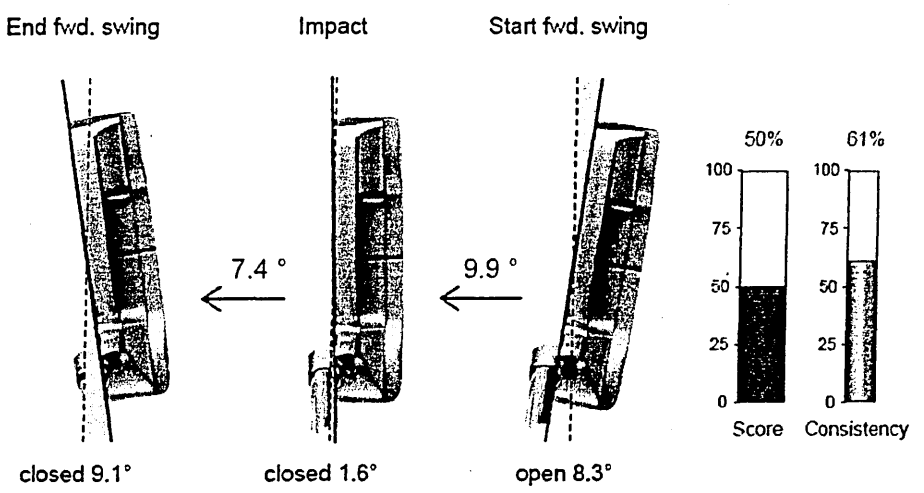
SAM PuttLab

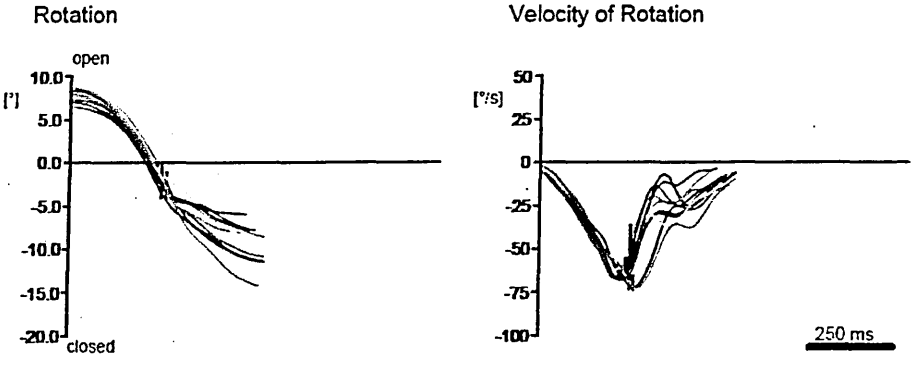
The revolution in short game golf training

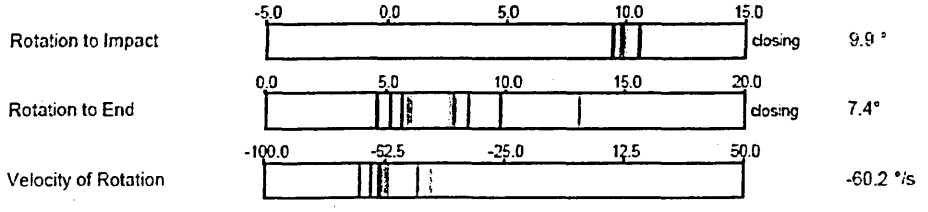
Science&Motion
Golf
www.scienceandmotion.com

Project:	Project 1
Player:	Grice, Nigel
File:	follow 6 foot
Date:	16.6.2006

Clubhead Rotation







Report: PRO Print Report

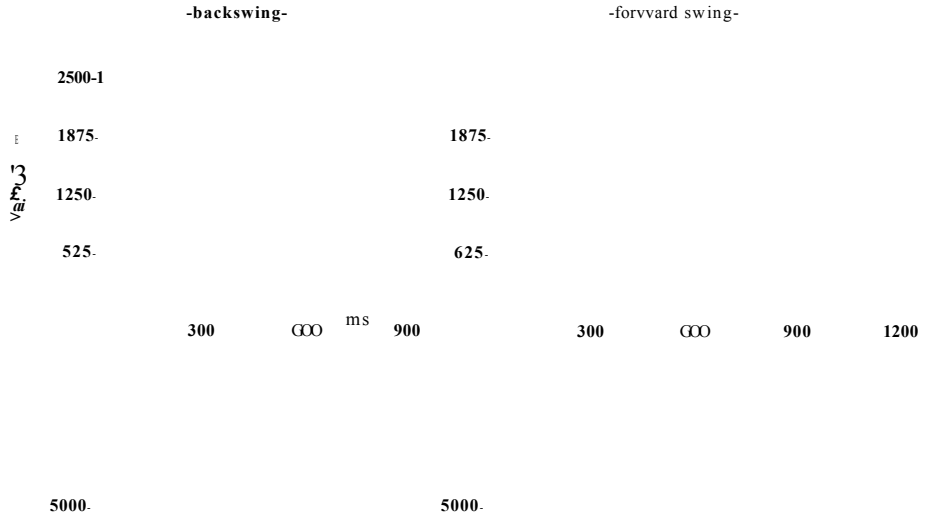
KL—K SAMPuttLab

The revolution in short game golf training

Science&Motion Golf
wwvv.scienceandmotion.com

Project: **Project 1**
Player **Grice, Nigel**
File: **follow 6 foot**
Date: **16.6.2006**

Movement Dynamics



Back Swing Duration	400	550	700	850	1C00	550 ms
Forward Swing Duration	600	750	900	1050	1200	503 ms
Time to impact	250	268	325	363	400	293 ms
Impact timing	**0.00**	*025*	0.50	0.75	100	049
Velocity at impact	1000	1375	1750	2125	2530	1331 mm/s

Appendix 14

Yips interview pre-intervention study 4

Interview: Participant A (pre intervention)

Firstly, could you describe to me the first occasion you first felt there was a problem with your bowling?

What happened?

Erm...fucking hell..that evening was against Leeds University. It was a warm-up game at Leeds-Bradford University. It was a warm up game I had had a pretty good pre-season, no I had a shit pre season tour, I hadn't bowled right. But we came back and I played against Durham up at Chester le Street and I bowled perfect. And I thought I'm glad I'm back on track here. But, even then I'm thinking, for no reason whatsoever, I'm thinking, I hope I don't start bowling wides. For no reason. It was a four day situation. As soon as I bowled the first ball I was back on track. No problems. It never crossed my mind. And that night before the Leeds Bradford game I was just concerned, I don't know why. I get nervous before a lot of games, everyone does. I was just concerned about how it was going to go tomorrow. And with all due respect it was just a 'tom noddy game' against kids. I just wanted to get through and get a build up for the (County) Championship match the week after. So I just...didn't think anything of it again. The next day, I bowled a ball down the leg side and it hit the thigh pad of the batter. I think it was the 2nd ball I bowled. The first ball went down the leg side but nothing too untoward. It has just clipped his thigh pad, and I said to XXXXX, something is not right here. And him being as blunt as ever swore at me. And then I dragged one down, sort of pulled it down the off stump and I thought, 'wait a minute'. So I bowled four overs. I just tried to get it up there and I'm just thinking what's going on here.

How did it feel?

It's sort of like a hesitation just as you let go of the ball. There is a sort of jerky hesitant feeling as you let go of the ball. Its also top body for me. It's the whole sense. The whole sort of top upper body is not quite right? But it would vary. It wouldn't be just like that. I would have times where I could play but then it would all just go tits up and that was the most frustrating part. It just felt like you were not in control of what you were doing which is even more frustrating.

What were you thinking?

I would be doing things mentally to try and get myself prepared for it. The more I got prepared for it the more worked up I got. Some days where I would feel okay I would be like, oh I will have a bowl here and I would be alright. I would bowl three or four overs no problem at all and then I would bowl one bad ball and that was it. One bad ball and that is it, everything comes flooding back, and then its just a rush to get through the 6 balls. Which obviously when your batting, your struggling you are out. But you control the game as a bowler don't you. So that was the big for me, just getting through the over. Getting through 5 balls, getting through as little as ever. That's the core the way I see it. Certainly in one day cricket. Obviously there is an element of embarrassing yourself but when it's out it wasn't even embarrassing because people knew I was struggling. It wasn't just in first class cricket. It was in league cricket. The strange thing is, in-between it all I had a summer with Durham, not this year the year before. I bowled in nine first class matches. I bowled one wide.

Before the yips started how were your performance levels?

I think in a way those 5 years before the yips, everything was perfect, I think I just took it for granted and that is when I said to you before, I should have dealt with it there and then. I should have pulled my finger out. If I had known then what I knew know that it has got worse...I made it worse. The bottom line is I did it make it worse through what I was thinking. I would love to have just dealt with it again and just got on with it...dealt with it and took it for what it was...bowling shit coz that is what it was...even if it was bowling shit for 2 months...go straight through it...through the pain barrier...stop being embarrassed, which is alot easier said than done. Stop being self conscious. I mean these people aren't...these people around me they are not doing it for me...that's what I leamt...you have got your friends, you have got your close friends. Nobody is contributing to your bowling. You are the person yourself who is doing it. So looking back on it, I should have just said, you can take the piss out of me, I'm embarrassed but I will get over it. And the bottom line is it wasn't a life threatening thing....but at the time it was, obviously. I would think about it 23 hours a day.

I want to focus on the period building upto the yips. The focus is to ascertain if there were any factors in your sport or daily life which may have contributed to your yips experience?

What was happening at or around the time the yips started?

A lot of my experiences go back to when I was picked for XXXXX. The day before I was picked, XXXXX said to me, you are not going to play in the festival game which was at Scarborough. I got picked for XXXXX that day so I went out, and got absolutely smashed. Anyway, the next morning David Bias pulled me back and said, listen your playing. I said what, he said your playing. I said, Christ I only got in at 4 o'clock. And he doesn't take any shit. I thought bloody hell I'm playing. Lucky enough we batted first and I slept. And it was absolutely game over. So anyway, I opened the bowling. I was hazy at the best of times. And I just bowled tross, just throwing it all over the place. So I just put it down to being hung-over and so did other people. Now, I knew in the back of my mind that I had no control over that ball whatsoever. So anyway, as it turns out I bowled three or four overs, went for 30, but bowled about 9 wides in those 3 or 4 overs. Anyway, pulled my hamstring. A lot people thought, oh he is opting out, but I generally pulled my hamstring. This was before the XXXXX tour. So anyway, pulled my hamstring. A bit of a mixture between not warming up and being pissed the night before. So anyway, there was a big build up, am I going to go on tour. So anyway, that night I didn't sleep and I thought shit, imagine if that happens in a one day international. And I think looking back on it, yeah, Christ, looking back I can remember having a sleepless night that night. And in the morning I woke up and thought, oh crock of shit, I'm not interested. And saying that interestingly, on the way home, I phoned our club psychologist, and said listen can I just do a bit with you before I go away. You know, trying and get some benefit out of it, try and get rid of anything negative. And I did a bit of work with him. Anyway, I found that the more I thought about it, the more I tried to analyse it, the worse and worse it got, the more nervous, the more tense. This is before I'm going on an XXXXX Tour. But as it turns out…I mean I was nervous before the Test Match but I was genuinely looking forward to it. So I think that pretty much kicked it off for me. And like I never had one against Hertforshire in the C and G and that happened again there. But I just put it down to another bad game. People

put that down to 'oh he bowled a few wides'. But I knew something wasn't quite right. I felt rushed. I just wanted to get through my 6 balls. I didn't care if I went for 36. I couldn't give a flying...I would be relieved if I got hit for 4. That was how bad it was. I would be relieved if it was a straight ball as that was once less ball to bowl.

...On tour with XXXXX, after the Test Match, obviously I had got two noughts, I bowled alright but I didn't feel at my best which was most disappointing because I didn't perform. I never performed at my best on that XXXXX Tour. Even those four games going into it, we had some fantastic games, I had bowled alright, I bowled well, I got a couple of runs at vital times but I never performed at my best. I never was really...even that summer after I played at my best. But that XXXXX Tour, the most disappointing, I never showed people what I could do. And that was the really disappointing thing about it. I had a shit Test Match...the press next morning; I couldn't get away from it. People in the streets, I mean they are an absolute twat of a nation anyway but that's parcel and part of it. To be honest I quite enjoyed the hype because people now know who I am which I thought was quite a nice refreshing way out of it. And then obviously the Test Match...we had had a game between the test matches, and I didn't get picked, and I thought, arrrraaa, but it was a foregone conclusion. Then we had the pre nets four days before the test match, and I didn't bat that day, I just bowled. It wasn't as if it came as a shock. And then XXXXXX told me the day before I'm not playing. But it was a bit of a sense of relief to be honest because I thought, oh well, it gives me a chance to work on my game and I might get another sniff. On that Tour XXXXX got me out twice. The 1st one was a great ball. The second one hit me in the face, just got my glove on it. And I thought, fucking hell, great, what a baptism of fire this is! But that night, XXXXXX was playing out of his skin. He got 80 odd...he was on 80 odd and XXXXX was steaming in. He hooked him over backward square leg. He put one out (a fielder out). He bounced him again...and he hooked him over square leg. He put another out (fielder). So there is now three men out...he bounced him again and he hooked him over midwicket. So XXXXX has got steam coming out of his ears, and he is only in his second over so he is fresh as a daisy, and sure enough he gets out 3rd over, caught at point. 25 minutes before the end of play, 30,000 in the crowd slapping on the sides, I'm on a pair, Test Match, XXXXX bowling, 95mph...great...thrilled to bits. But I was up for it...I thought this is good. Half of me was a bit miffed. I thought I cant believe he got out. But it was quite a comedy sort of thing. I left the 1st two balls, anyway XXXXX comes down and says, 'fuck he is bowling quick'. I'm like, oh shut up will you, we had a bit of a giggle. Anyway, sure enough, first ball next over, I got a nick, out for nought. So anyway, they started thinking I problems with the short ball, and I hadn't. I had never got out to a short ball my whole life. So that started something...and the press got hold of this that I couldn't play the short ball. Anyway, in the nets, the next session I had, I would have XXXX, XXXX, XXXX, XXXX, XXXX, they would all be in my net, all five of them in my net trying to kill me. I'm thinking what type of fucking practice is this. Thanks XXXXX (XXXXX Coach)...I've just got two noughts and he's got the five quickest bowlers bowling off their full run up, peppering me. So obviously I am going to get hit every now and then. So that started something as well...and I still resent them for doing it. Then I started thinking, shit have I got problems with the short ball here! So then...my batting went a bit downhill a bit.

So anyway, new year came, I hadn't played for a month. I thought bollocks, I will have a fresh start, new year. I thought they are not going to pick me. I was happy with myself. I practiced...I used the facilities in preparation for the XXXXX season. And it turns out, they had paid me £50,000 to go on holiday...you know disappointing, as it is, thanks very much. That is genuinely the way I looked at it, whereas before Christmas I was distraught, pissed off, I wasn't interested, which is unheard of on an XXXXX Tour. The one dayers were coming up and I thought I would get picked and I didn't. I thought, great, I will just train and get ready for the XXXXX season.

The following season went well...then the following year after that we won the Championship. That year I didn't have a very good average. I averaged 15 with the bat. I got 30 odd wickets but I had a lot of injury problems.

I thought I'm due a bad year, I cant keep going on like this, which is shit in itself, thinking when is it going to happen. I mean it wasn't a shit year. No-one said, oh XXXXX has had a shit year, but you look at the averages and you can say, yeah he had a shit year batting. Anyway, we won the Championship, first time in 30 years.

When would you say they are easiest and hardest to control?
Ueeewwww well....god I wish I knew the answer to that to be honest. If I could pinpoint the fact...okay there is a big build up...I'm nervous...I'm not sleeping...I'm shitting myself.. .I don't really want to play in this game just in case I bowl too many wides then that would be fine. But there were games when I would feel okay. I would good going into the game. I would feel confident, but then it would happen then! And that is what frustrates me the most. Hie fact that I would be okay, I would feel good in myself and then...tits up...it goes back to, get through your overs as quick as you can... get off. If I'm captain I'm not bowling (laughs). That's exactly how it was and it was just a way out. But that is the bottom line... if I had a way I would be alright.... if I had that injury I would be alright.

What have tried to help you overcome the problem?
I'd have read every single book about mental strength and sport psychology. Every single book. I got in touch with Paul Mckenna. I emailed him, didn't think anything of it. Twenty minutes later he emailed me back and said, yeah I know, come and see me next week. I went to see him, he just did some bits and bobs did a bit of hypnotherapy, and I don't think it actually worked but the fact that he had seen me. He had understood it, and I was like, that's alright that is. And this was when I was at XXXXX when it was at its worst. You know and it was alright, and I went to play in league game the next game and I bowled really well. And I thought I'm in the clear here.

What do you fear most about the yips?
The 6 balls is the thing...to get through it. It's horrendous. I don't think at the start of the over. I don't think I would have bowled a wide 5th and 6 balls because I have only got 2 to get through. I can remember the feeling now. I get to ball 3 and it would be like, oh, I'm on my way in here, I'm home free'. Even if I bowl a wide I have only got a couple to get through. But that was every single over.

Looking back what do you think contributed to the yips?

I think...I got dropped for the first time that year when we won the Championship. I had not played through injury, but I got dropped. And XXXXX didn't even tell me...I just expected to play. I wasn't feeling really confident in my game but I knew I was just one game away from pulling it back. XXXXX didn't pick me...we are stood in the dressing room and he is reading our the team, he got to number 7, didn't read my name, and everyone was like 'what'...great, I've just been left out. I was expecting him to come and tell me why he dropped me but he didn't. Bare in mind the two games before I had got 5 wickets and two wickets, so I had bowled alright. I was more of a bowler who was struggling with the bat. So he dropped me...now the way I was playing at the time batting wise, I wasn't really bothered. This goes back to the, I want to get back, get myself right, use it. But looking back at it, it was just another way out. At the time it felt right, you know, I could net. But unless you are in a game situation, and this goes back to dealing with it at the time, you can have as much nets as you like, you can feel as good as you like, go back to the second team score as much as you like, unless you are playing, you are never going to be right. No matter what! I don't care what anyone says, when you are bowling in the middle of a pitch, you can feel fantastic, you can think absolutely sweet fa, absolutely nothing at all, you get a bit of a feel, you might feel good going into the game but, it makes no difference at all. So at the time...it felt...well it wasn't too bad, I've been dropped, I have been given a bit of kick up the arse, which, I was quite okay with myself with it. I was still in the frame. I wasn't being kicked out, it wasn't as thought I'm going to be left out all the time. I am one person away from playing...so yeah I had been dropped. I took it badly to be honest. I wasn't thrilled. I wasn't happy with myself. I think it goes back to the, 'I've not been working hard enough over the winter.' The last few years, its my fault, I just wasn't, I just wasn't very happy with myself. And it spiralled and spiralled and spiralled...then I wouldn't bowl very well in the one day games and it goes back to that bad bowling Hertfordshire or wherever it was. And then there was the pre-season tour and I was dreading it. I started dreading bowling in one day games. It was like the dreading of bowling 6 balls. I wouldn't say it was just that because there was also the pre XXXXX game, the pre XXXXX Tour game when I was pissed the night before. So there is 2 of them. And I think that contributed to it. I wasn't happy with one day bowling. I was nervous. Even that year when I came back from XXXXX when I had a good year. Before I started...but when I started I was fine. Before I was always looking for, oh I hope I bowl after 15 overs, the fielders are out, you know, things like that. There were tiny little things which kept creeping in. I was driving round and I would be thinking, oh I hope I get through this, but then I would overlook it. And until it actually happened.

The pre XXXXX Tour game...that was the night out. I had no control, I was bowling wides, and that night I didn't sleep at all, I was thinking what happens if that happens when I am on tour. But this was three years before it happened. That was the big thing. And I am going on an XXXXX Tour so I am meant to be at the best part of my game. These are all little tiny things. On the Tour...I bowled in a couple of one day games and I bowled alright, but I wanted to get through them. This is where it all stemmed from I think, from one day cricket. I wouldn't say I didn't mind going for runs but I went for a few. And obviously when you bowl a wide, you bowl two wides and the crowd are on your back...that's...that's part and parcel of it.

Anything else

I would love to bowl again because I feel like I'm wasting myself. 1know XXXXX would love me to bowl. I genuinely think that if I came back from it I would be a better player for it. Because like…if I got a nought, or I didn't take a wicket, I would be like, 'who gives a flying toss'. After what I have been through, 0 would be nothing. I think I would be mentally stronger and also quite cocky I think.

My mate XXXXX to this day doesn't know why his went. To this day he just laughs his head off about it. To this day even when he bowls a wide in club cricket he doesn't even contemplate it. And obviously the more he bowls the better and better he gets.

Appendix 15

Yips interview post-intervention study 4

Participant A: (post intervention)

1. **Since you have returned to bowling after your EFT treatments with Lynn, what differences have you noticed?**

Well certainly over the last couple of weeks I have started to get into it a little bit more. I think very single time I have bowled, even every ball I have bowled has made a difference. It is just a confidence thing. I have put myself into some situations which I wouldn't have heard of over the last couple of years. The bottom line is, it is not as bad as what it looks. You know, its not all that bad. The big thing is also, I'm not doing it now for a living. I just tell myself, I am not bowling for a living anymore, I am just turning out to enjoy it. Little things like that. These are thoughts I wouldn't have even contemplated and just keep cropping up and sort of cementing it really.

There are still the odd lingering doubts. Before they were all pretty much guessing what was going to happen.

I'm not anxious now, I'm not nervous, I'm just like, oh well, if it happens it happens. Its all not quite as bad as what it used to be. It all doesn't seem as bad. I'm still a bit edgy about the whole thing, but I spoke to Lynn about it the other day and it is just a case of convincing myself. Every time I bowl now I am taking that little step further.

2. **Are there any physical sensations or mental demons still there when you bowl?**

I bowled a couple about 2 weeks ago in a league game. I just dragged them and they were wide. I definitely yipped up a tiny bit which I don't mind. But it was the way I reacted after if the way I was straight back on it. I did one more but it wasn't an issue. It was obviously, like what's going on, but it wasn't. I know how I react and I knew fine well that I didn't react to it like I used to react to it. It's just the bottom line was...in fact to be quite honest with you I don't really care that much. I don't care that much if it goes wrong. I just don't believe it will go wrong. I don't mean I don't care. Its just that it is not going to hit me as hard as what it did before. I'm not going to react to it. I know that. I often said to people I wished I had reacted to it a little bit different when it first happened. I can use this as a second chance.

3. **What do you think has made the difference?**

I have no idea really. I just think you have to bowl. I always said that I shouldn't have bailed out of it, and I shouldn't have taken a couple of months off to try and get it sorted. I should have just kept going and going and going and every single time just bowl and bowl and bowl.

It was never going to be a quick fix. It was going through the pain barrier. Its not the physical pain it is the mental pain. Just go through it. Just accept it. Let people think what they want. It was never going to heal itself. I had to bowl for it to heal. I could have spent years convincing myself saying I was going to be okay but unless I actually did it its sort of, your never going to prove it to yourself.

4. **Do you think Lynn has made any difference?**

Absolutely yeah. She has certainly shifted something. Every time I leave I think has it gone, has it gone. But you can never tell. And I didn't bowl a couple of times after I left Lynn. And I was thinking oh its just rubbish, it's not worked. And there were then a couple of situations which just came up that were really unusual, out of nowhere that just felt, I really want to have a bowl.
When they were giving the new ball to a couple of the lads, and I thought, I wouldn't mind a little go with that today. I wouldn't mind a little go and come down the hill with the wind with the new ball which is miles away from what I was before. And it is tiny little things like that. I'll remember that and then the next day little other tilings would come up and they sort of pile on top of each other. And slowly the shitty thoughts are getting pushed away.

5. **If you could put your finger on something she has removed what would it be?**

I don't really know actually. The big thing is dealing with the bad ball. That is something we really did concentrate on for a few weeks. You know, just accepting it for what it is and just dealing with it, which was the tricky part to overcome in the first place. Its not one specific thing. There were so many tiny little things which a) made me feel it was sort of going to go wrong, little tiny things such as the slopes running away on the wicket and I have to bowl it a little bit more...just tiny little things that is just over analysing really. The big thing is she gave me the confidence to just get on with it. The confidence just to try it. I was like I'm not doing it at all.

Even this weekend. I bowled for Scotland on Saturday. I was surprised they bowled me really. It went really really well. I only bowled an over. Just an over. They were like go on, have the last one. And I said to them, look, bowl me whenever you want now. Which is good. Even when I finished on Sunday I was looking forward to the next weekend. I am looking forward to this Saturday. I will probably take the new ball in the Club game and if Scotland give me a few overs this Sunday then fantastic.

Before it was like, oh is it Saturday again. I think it is a general excitement of what is going to happen, you know, how it is going to be. I played yesterday in a benefit game and I bowled 7 overs, just a half paced run up and I bowled brilliantly. So I had no qualms with it at all. I know it was only a mess about game but I just got on with it and I just bowled. Beforehand I probably would have just bowled a bit of spin.

Its nice because little things like yesterday where I bowled off a half pace run up and I bowled well, I thought I can do a job for my club side doing this. I could quite easily bowl like this and take a lot of wickets without having to come off a full run up. And then I will take the odd full run up and it will come, little things like that. I never used to think like that. I was always like, oh lets get through today and deal with the next day as it comes.

6. **Are you bowling now with the same fluidity as you were before you had the yips?**

Erm, not yet. After this last weekends, I bowled it and I bowled it properly. Long run up, followed through, everything was fine. I just feel I need a few more games, a) to

get my body right because I did struggle physically to get through it, not so much fitness, just niggles and everything like that and b) to just get a few games under my belt because I know fine well, once I have got a few games under my belt it will go nicely. I can just genuinely feel the difference. Like I say, I can't really pinpoint one thing. The only niggling little thing in my mind is, is it messing around with me. Is it just give into it to drag me back down again which to be honest is the only thing which is stopping me just gunning it straight away. But you know I'll accept it. I will quite gladly accept where I am at right now.

7. Is there anything you fear now?

Not actually being in a first class situation where the pressure has been on me to do something. Once I have played one of those games. Once I have bowled my ten overs and I bowl well for 10 overs and I contribute at the death and at the start with the new ball, then I will know once and for all it is done and dusted.

I know fine well I will always be a bit sceptical of the whole thing. It would be unheard of for it to just disappear. I know if I can just get 4 or 5 games under my belt, a couple of first class games under my belt, bowling my full 10 overs, in all situations, whether it be saving 5 runs off the last over, little things like that, it will make a big difference.

8. What is your impression of the EFT?

Well to be honest with you I didn't really care what she did as long is it just got on with it. I was a little bit dubious about it at first. The more like, every time I left the session, and every time we did it, you started to believe in it really. I wouldn't say I understand it because I haven't got a clue. Yeah, every time I left the session I felt ready to get involved then. That is what I would have liked to have done is just as soon as I had finished go and bowl. That was the hard part at first because we would do it, then I would have 4 days to ponder over stuff, and I would be like oh what the hell, what the hell. That in itself obviously shifted something whether it be a confidence thing or what, I have no idea. It certainly made a difference without a shadow of a doubt.

9. What hopes do you have for the future?

Erm well I have quite a lot of cricket coming up with Scotland. I want to be certainly within the next two months erm being picked in a side as a fifth bowler. Its tiny little things like that. You are going to bat five and you are going to bowl first change and that is your job. I've been saying to a lot of people I don't feel like a complete cricketer unless I am bowling. I can play a few games and get a few runs year and there. There is nothing worse than sitting on the sidelines and watching people, do something you know you can do. Where now, I analyse situations where I havnt been bowling. I just want to get involved. Like I said before I just want to get through five games now as a bowler and by the end of the summer, look back on the last two months of the summer and just be happy where I have got to really. I am very happy

where I am now. I am really happy about the lack of anxiety about bowling that I have got.

10. Is this the most progress you have made?

It is certainly the longest it has lasted. I've made a lot of progress and it has only lasted a couple of days in the last. When you walk away form a session you know you are full of confidence. I've not had to do anything within myself. You know I can tap here and there but even then...I said to Lynn, I didn't do anything at the weekend, I just got on with it. She said that is a fantastic sign.

11. In your previous interview you mentioned an incident pre England Tour. Did that have anything to do with the yips?

I don't think it helped. I don't think it helped at all. 1just think it left something there which contributed to a lot of...1 wouldn't say it was the initial one. I would love to be able to pinpoint it. That played a big part in it though it really did. It was partly the fact I am capable of doing that. I have got it ion me to do it. And the worrying thing was I couldn't control it. The thought of shit when is it coming, to get through 4 years of first class cricket with it, it wasn't very pleasant. It certainly didn't help at all that is for sure.